NATIONAL MUSEUM OF VICTORIA

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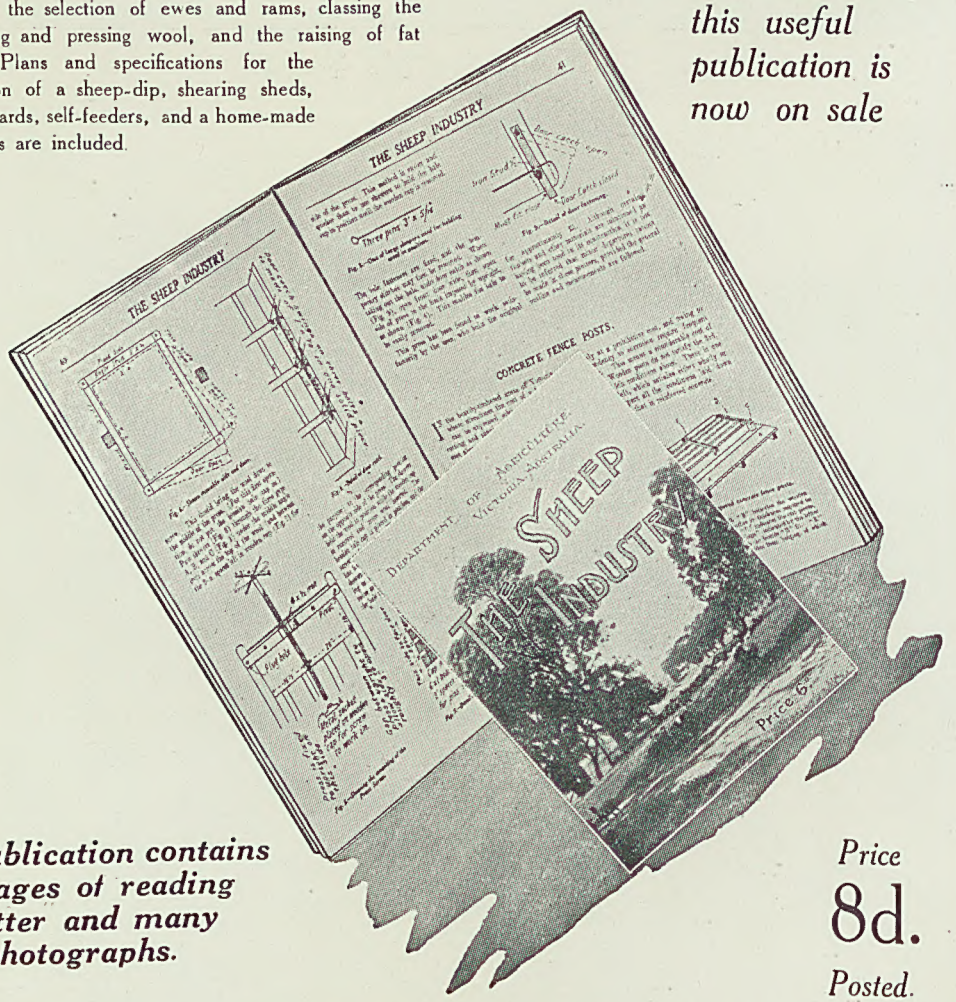

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Issued under the direction of the Hon. E. J. Hogan, M.L.A., Minister of Agriculture.

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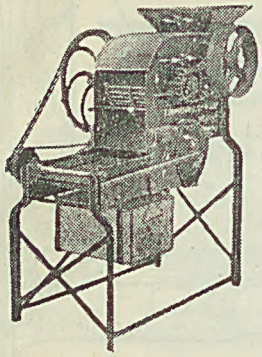

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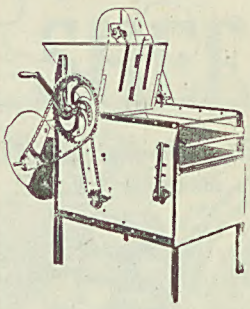

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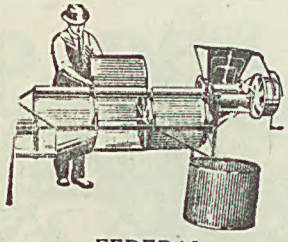

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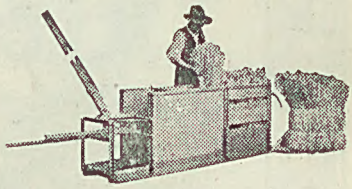

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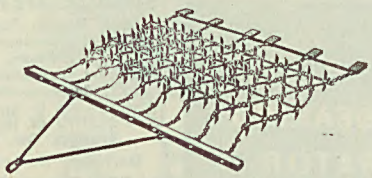

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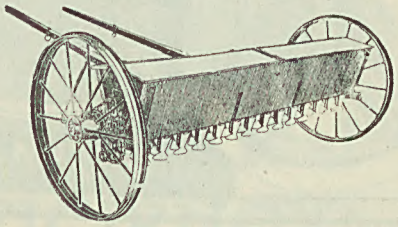

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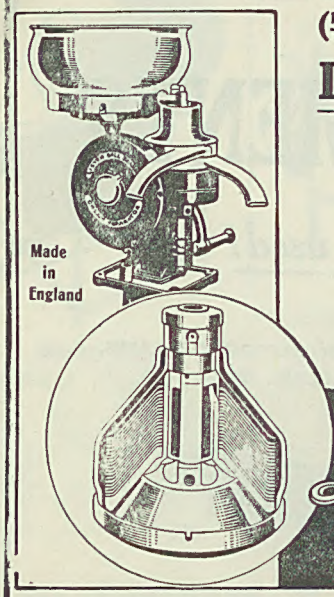

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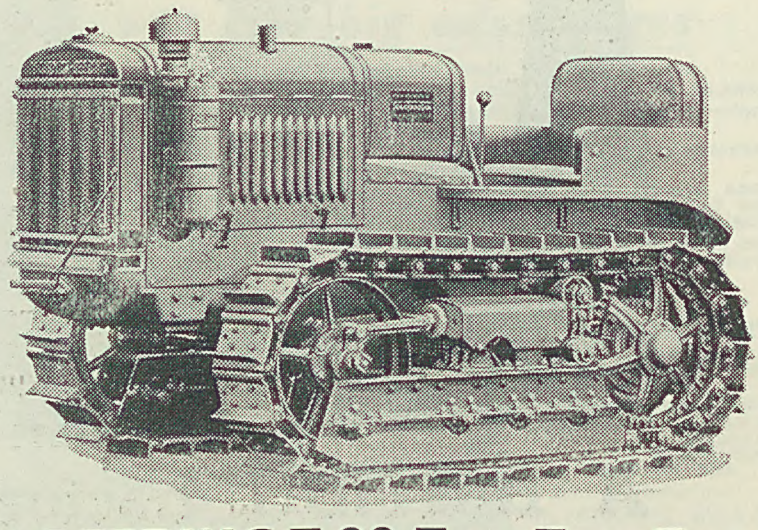

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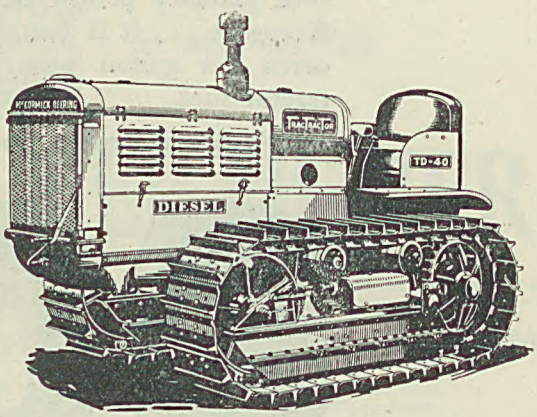

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The Journal of the DEPARTMENT of AGRICULTURE of VICTORIA

The late Hon. John Allan, M.L.A.

With very great regret we place on record the death on the 22nd February of the Hon. John Allan, M.L.A. for Rodney, and a former Minister of Agriculture. Mr. Allan, who lived most of his life in the Goulburn Valley, was a successful wheat-grower at Wyuna South. Early in his life he devoted himself to municipal service, and for sixteen years was a member, and at the time of his death President, of the Deakin Shire. He was a Commissioner of the old Rodney Irrigation Trust, and Chairman of the Kyabram Butter Factory.

First elected to the Victorian Parliament in 1917 Mr. Allan early made his mark, and in September, 1923, was appointed Minister of Lands and Water Supply—offices which he held until March, 1924. In November, 1924, he became Premier in a composite Government, holding that office until May, 1927. When the Argyle Ministry was formed in 1932 Mr. Allan was chosen as Minister of Agriculture, and during his term of office he introduced and piloted through the Legislative Assembly the Bill providing for the establishment of facilities for the bulk-handling of wheat. Other notable legislation for which he was responsible during his term as Minister of Agriculture included the Dairy Products Act, under which the present butter equalization scheme is conducted, and the Milk Board Act, which empowers the Milk Board to fix the minimum price to be paid to the producer.

The late Hon. J. Allan, M.L.A., former Minister of Agriculture.

Mr. Allan was a man of most genial disposition, and all those in the Department with whom he came in contact will cherish very kindly memories of him.

Grade Herd Testing

Annual Report, 1934-35

By W. J. Yuill, Senior Dairy Supervisor

The Highest Producing Herd of the 1935 Season.
Mr. G. Stanlake's herd of 23 cows which averaged 449 lb. butter-fat.

IN the report of Grade Herd Testing work for 1933–34 it was stated that the depression had had a serious effect on the herd-recording movement. Unfortunately this continued during last year, with a decline in membership in some Associations, and less than 80,000 cows were tested—the lowest number for four years. But with the recent improvement in prices we can reasonably hope for an immediate improvement; indeed, there are several signs of this.

New units have been formed at Korumburra and Port Campbell, and the Paschendale unit has been revived; the Mornington Peninsula area has been extended to include Phillip Island, and new units are being organized at Winchelsea and Woodford.

Though the year was generally a good one, some very unusual features were observed. Early spring conditions were unfavorable to the growth of pastures, and in many places it was feared that only a short season could be looked for. However, towards the end of October good rains fell throughout most of the State, and again in November there were heavy falls which caused severe flooding in many places. During summer and autumn very heavy rain caused extensive damage to pastures and crops in several districts; in addition, there were great losses of live stock and, as a result, the output from many well-known river flat properties was greatly reduced. How severe the conditions were on some farms can be gauged from the fact that in a period of twelve months they were inundated on an average once a month. In many instances crops were sown twice or three times only to be destroyed. But despite these losses in some districts, and the grasshopper plague in others, the average butter-fat yield of all cows in the Test (45 per cent. of which were juniors) was 244 lb.—the second highest amount recorded; the yield for 1932–3 was 3.7 lb. greater.

Though the low-lying areas of South-Eastern Victoria suffered from floods, losses there were offset by excellent returns from the triangle of hill country between Yarram, Loch, and Noojee.

The average yield for Gippsland was 259 lb. butter-fat for 30,617 cows (including 14,463 under four years old)—only 1 lb. below the record. During the whole of the seven months from October, 1934, to April, 1935, spring-like conditions obtained. The rainfall at Mirboo North was—October 629 points, November 1,242, December 458, January 300, February 525, March 410, April 1,043—a total registration of 46·07 inches for seven months.

In the western part of the State the average yield was 234 lb., which is proof that almost ideal conditions existed throughout the year. Although this area has eleven units less than Gippsland the actual number of cows is only 3,000 less, for the herds there average six more in number; they also average two more than those of the North-East and ten more than those in the Goulburn Valley, although in this latter district the average is higher by six than it was five years ago.

The average production of the cows tested in the North-Eastern area was 15 lb. less than the record figures of 1932–3, while the average yield in the Goulburn Valley and the Irrigation areas was 13 lb. less than in their record year.

In the Maffra No. 1, Rochester, and Werribee South units all the cows tested exceeded the 300 lb. mark. It should be pointed out that no allowances of any kind are made. In most of the tables either the number or the percentage of juniors is indicated.

Maffra No. 1 is still the leading unit in the State, not only in numbers but also in yield. Its fine record during the past five years is shown in the following table :—

Year.	No. of Herds.	No. of Cows.	Average Butter-fat.	Percentage of Junior Cows.	No. of Pure-bred Bulls.
			lb.		
1930–31 ..	24	1,017	317	34	23
1931–32 ..	24	1,017	314	43	20
1932–33 ..	27	1,100	306·5	43·6	27
1933–34 ..	24	1,046	291·5	47	24
1934–35 ..	26	1,078	307	48	26

Delight—one of Mr. H. H. Keele's high-producing junior cows—Rochester Association.

The Rochester herds are smaller than those at Maffra, but they have even a finer record, as is shown in the table hereunder :—

Year.	No. of Herds.	No. of Cows.	Average Butter-fat.	Percentage of Junior Cows.	No. of Pure-bred Bulls.
			lb.		
1930–31 ..	28	496	299·3	36	17
1931–32 ..	26	462	309	51	21
1932–33 ..	25	477	319·8	57·8	10
1933–34 ..	21	499	299·5	59	11
1934–35 ..	24	491	315	52	15

The Werribee South Association has experienced a very difficult period, and much credit is due to the sixteen members, mostly returned soldiers, who have stuck to the testing and culling of their herds. Although 60 per cent. of the cows tested were under four years of age the excellent average of 300 lb. butter-fat was reached.

In all, 34 units exceeded the 260 lb. mark, 17 of them averaging 270 lb. Of these 34 units, 23 were in Gippsland; they included Yarram No. 1, Maffra Nos. 3 and 4, and Mountain View; the average yield of these four exceeded 270 lb., while the average of Dumbalk and Narracan No. 3 was 10 lb. higher. Yinnar No. 1 and Loch each had a yield of 291 lb.; there were, however, twice as many cows in the Yinnar unit as were tested at Loch.

One of the outstanding performances of the year was that of the Dumbalk North Association. The average yield of 903 cows was 297 lb., and what makes this return so deserving of mention

is that 41 per. cent of the cows were juniors and that most of the cows were tested on farms in hill country.

Warrnambool, Woodford, Geelong, Dreeite South, and Winchelsea all had high averages; those of Warrnambool and Woodford were particularly good. Warrnambool's average of 275 lb. for 1,110 cows easily surpassed all the other western units; the unit that most nearly approached it was Woodford—its average was 10 lb. less per cow.

In the North-Eastern area the pioneer units also secured foremost places. The average of Eskdale No. 1 was equal to that of Warrnambool, but it must be remembered that the number of cows in the Eskdale No. 1 unit is much smaller than at Warrnambool. The average of the Myrtleford and Eskdale No. 2 units both exceeded the 260 lb. level.

The yields of most of the Goulburn Valley Associations were lowered by the grasshopper plague, but in spite of this unlooked-for trouble the figures of the North Shepparton and Swan Hill units were high. Reports to hand indicate that good yields are being obtained in these areas this season. Seventy-three per cent. of all tested cows were on farms south of the Dividing Range, where generally the 1934-35 season was a good one; this accounts for the high average figures.

The highest yield for the year was that of the herd of Mr. G. Stanlake, of the Loch Association; the average for this herd was 449 lb. butter-fat. The finest performance of the year, however, was that of Mr. H. Furphy's herd at Dumbalk North. His 42 cows had the excellent average of 442 lb.; the yields of nine of them exceeded 500 lb., and two of these (Lily, 644 lb. and Rosina, 595 lb.) were amongst the "20 highest producers of the year." During the season $8\frac{3}{4}$ tons of butter-fat was sold from Mr. Furphy's farm to the local butter factory. Owing to herd disturbances not all the cows of the herd appear in the Annual Report. A feature of this herd's history is that 30 of the tested cows, including eight of the "500 lb. group" were sired by production-bred grade bulls.

One of the highest averages this year was that of the herd of Messrs. H. H. Prime and Sons, of Winchelsea. The herd consisted of thirteen, all of which had been sired by "Duke of St. Albans," a son of "Beauty 4th of St. Albans," a Standard Herd Test cow, whose butter-fat average for six years was 560 lb.

The herd of Mr. A. J. Matthey, of the Geelong Association, averaged 7,673 lb. milk and 417 lb. butter-fat. This herd numbered 30; seven exceeded 500 lb.; amongst them was "Flo," the highest producer of the year; her yield was

A group of 500 lb. cows on the farm of Mr. H. Furphy at Dumbalk North. $8\frac{3}{4}$ tons of butter-fat was sold off this farm during the 1935 season.

TABLE I.—HIGH-PRODUCING HERDS OF LESS THAN 20 (IN ORDER OF MERIT).

Owner.	Association.	No. of Cows.	Average Yield Butter-fat.
			lb.
H. H. Prime and Sons	Winchelsea ..	13	443
P. A. Freestone ..	North Murchison	11	427
G. Bright	Dumbalk ..	14	418
R. Rautman ..	Maffra ..	17	402
F. Savige ..	Narracan ..	18	384
G. A. Harriman ..	Stanhope ..	14	377
H. J. Hulme ..	Milawa ..	14	370
R. Lukins ..	Tallangatta ..	13	367
J. L. Anderson ..	Lang Lang ..	18	364
J. McLeod ..	Bunyip ..	11	362
W. J. Roach ..	Narracan ..	18	360
A. C. McLeod ..	Undera ..	12	360
J. H. Whiston ..	Bunyip ..	18	358
C. J. Pierce ..	Rochester ..	15	357
C. Jennings ..	Peninsula ..	13	356
A. Armstrong ..	Leongatha ..	15	354
S. E. Paynter ..	Rochester ..	19	354
Mrs. E. Allan ..	Rochester ..	15	351
L. C. Williams ..	Maffra ..	18	350

14,298 lb. milk and 791 lb. butter-fat. The bull in use is a son of that fine cow "Bunty 2nd of Coliban," whose ten years' average was 519 lb. butter-fat. This sire has had a very marked influence in the improvement of the herd.

In the herd of Mr. J. G. Howell, of Leongatha, five cows exceeded the 500 lb. mark; among them was "Beverley," one of the first 20; her production was 617 lb. Mr. G. Gwyther, of the same Association, had six cows in a herd of 30 that reached the 500 lb. mark; the average for the whole herd was 351 lb.

Mr. E. Gadd, of the Traralgon Association, is another who is the fortunate possessor of a herd sire of proved prepotency. The yields of four of this sire's two-year old daughters passed the 500 lb. mark; this is a very remarkable performance.

Mr. A. Bleckley, of Warragul, just missed the 400 lb. average. This most consistent herd averaged 396 lb.; it included "Fairy," (611 lb.), one of the best twenty in the Test, and three others which topped the 500 lb. mark.

Messrs. A. G. and B. Clyne, of Maffra, W. J. Axford, of Kongwak, R. Glover, of Loch, and W. J. Reid, of Gainsborough, all own high-producing herds; in each of these there are three producers of the 500 lb. class. The herds of Mrs. J. M. Scott, of Geelong, and Messrs. C. P. Bubb, of Narracan, R. Anderson, of Rochester, and E. B. Neave, of Traralgon, are smaller and their averages are higher; in each of these herds,

Jerseyholm Island King, a successful sire in the herd of Mr. Luke Jones of Dumbalk North Association. Despite his unprepossessing appearance, this bull has sired some highly productive daughters.

too, there are cows that have reached the 500 lb. mark. Messrs. McNamara Bros., of Werribee South, had two such cows in their herd of 86; in each of fifteen other considerably smaller herds there were two cows that reached the 500 lb. mark.

There were some remarkably consistent herds in the section for herds of from 20 to 40 cows; 25 of these exceeded the 366 lb. average. A fine

TABLE II.—HIGH-PRODUCING HERDS OF FROM 20 TO 40 (IN ORDER OF MERIT).

Owner.	Association.	No. of Cows.	Average Yield Butter-fat.
			lb.
G. Stanlake ..	Loch	20	449
E. B. Neave ..	Traralgon ..	20	442
A. J. Matthey ..	Geelong ..	30	417
E. Gadd	Traralgon ..	23	416
R. G. Anderson ..	Rochester ..	21	412
J. D. Pierce ..	Rochester ..	23	410
J. B. Sellars ..	Narracan ..	26	408
E. A. Swayn ..	Stanhope ..	25	405
A. E. McPhie ..	Mirboo North ..	26	397
A. E. Bleckley ..	Warragul ..	21	396
W. R. Prince ..	Swan Hill ..	23	396
K. Gunn	Leongatha ..	23	395
W. J. Wade ..	Maffra ..	36	395
M. Considine ..	Dumbalk ..	33	393
H. Sharples ..	Jindivick-Neerim	23	387
W. H. Trew ..	Yinnar No. 1 ..	22	384
W. Edney ..	Jindivick-Neerim	27	383
H. E. Keele and Son	Rochester ..	40	380
W. B. Fuller ..	Dumbalk ..	35	377
Executors P. Cardwell	Eskdale ..	40	375
A. Sims	Ondit-Irrewarra	24	372
T. Reid	Maffra ..	20	369
D. Ussher ..	Stanhope ..	24	367
C. P. Bubb ..	Narracan ..	27	366
J. Bennett ..	Yinnar ..	31	366

TABLE III.—HIGH-PRODUCING HERDS OF FROM 41 TO 60 (IN ORDER OF MERIT).

Owner.	Association.	No. of Cows.	Average Yield Butter-fat.
			lb.
H. Furphy ..	Dumbalk ..	41	422
J. G. Howell ..	Leongatha ..	49	386
P. Glover	Loch	43	359
R. B. McKenzie ..	Port Campbell	44	359
J. T. Attenborough ..	Yarram ..	43	359
J. Nuttall ..	Yinnar ..	44	355
E. R. Ford ..	Port Campbell	57	352
L. Jones	Dumbalk ..	48	352
T. S. Lord ..	Port Campbell	50	346
Rawlinson Bros. ..	Werribee South	42	343
N. S. Terrier ..	Winchelsea ..	45	342
H. H. Dowel ..	Korumburra ..	42	341
A. Jessop	Maffra ..	45	336
L. A. Peace ..	Leitchville ..	44	333
A. E. Barton ..	Kiewa ..	41	332
J. Osborne ..	Maffra ..	50	331
J. T. Allandyce ..	Maffra ..	41	330
H. Kellas	Maffra ..	44	330
R. Cardwell ..	Eskdale ..	53	329
H. J. Axford ..	Kongwak ..	60	326
Ballagh Bros. ..	Dreeite South ..	56	323
C. P. Tobin ..	Eskdale ..	51	323
L. J. Tate ..	Woodford ..	48	323
J. Moore and Co. No. 2	Yarram ..	45	322
R. G. Singleton No. 5	Maffra ..	35	322

story could be written of the herd improvement on most of the farms in this section; none would certainly be more interesting than that of Messrs. H. E. Keele and Son, of Rochester, whose herd has been conspicuous for high average yields for nearly ten years. It is interesting to note that there are only eight herds in the section for herds of twenty cows and under whose yields were equal to that of the lowest herds in the section for herds of from 20 to 40 cows. Messrs. R. B. McKenzie, N. R. Ford, and T. B. Bord, of the Port Campbell Association, each owns a large herd which gave excellent returns.

In the section for herds of 60 to 80 cows there were two herds of the pioneer Association—Yinnar; one was that of Mr. J. Nuttall; the other belonged to Messrs. Walker Bros. Both contestants have had very good herds for the past fifteen years. In the recent test the average for Messrs. Walker Bros. 66 cows was the particularly good one of 366 lb. Very fine yields were obtained from the twelve leading herds in this section. The 358 lb. average of Messrs. Batten and Son's herd of 73 is but one of several excellent returns secured by the Messrs. Batten from time to time.

For many years Mr. J. Coolahan's herd has been prominent in "The Sisters" Association. This year he led in the section for herds of more than 80; the average butter-fat for his herd of 104 cows was 318 lb. A similar average was obtained by Messrs. McNamara Bros., of Werribee South, with a smaller herd. The herd of Mr. F. Webster, of Maffra, numbered 99, and gave an average yield of 312 lb.; Messrs. Moore and Co's herd at Yarram consisted of 102 cows, and their average was 298 lb.; three other of their share farms appear in this section. The herds of Messrs. J. R. Manson and Sons, No. 2 Farm at Maffra (86 cows), and Messrs. E. and J. Heaney, of Warrnambool (92 cows), were each a few lb. below the 300 lb. mark.

Eight herds in this section numbered more than 100; the largest (121 cows) was owned by Mr. A. L. Vagg, of South Purrumbete Association. The herds of Mr. R. A. Borch, of Nalangil Association (86 cows), and Messrs. Moore and Co's No. 3 Farm (99 cows), averaged 288 lbs. Even Mr. H. Napper's No. 2 herd of 110 cows, which occupies twenty-fifth place in its section, had an average of 240 lb., which is 100 per cent. higher than the yield of the average Australian dairy cow.

TABLE IV.—HIGH-PRODUCING HERDS OF FROM 61 TO 80 (IN ORDER OF MERIT).

Owner.	Association.	No. of Cows.	Average Yield Butter-fat.
			lb.
Walker Bros. ..	Yinnar ..	66	364
H. J. Batten and Son	Warrnambool ..	73	358
W. J. Wheeldon ..	Warragul ..	71	349
G. A. and B. Clyne (No. 1)	Maffra ..	65	334
G. A. and B. Clyne (No. 2)	Maffra ..	71	325
W. M. Tyrell ..	Upper Murray ..	63	321
H. G. Noble ..	Maffra ..	62	320
Hamilton Bros. ..	Dumbalk ..	61	320
W. Clement ..	Maffra ..	66	313
H. R. Graham ..	Traralgon ..	64	309
R. Milne and Sons ..	Warrnambool ..	63	307
W. J. Evans ..	Gellibrand ..	78	306
J. and M. Sexton ..	Nalangil ..	78	296
J. Waite	Traralgon ..	65	296
E. and R. Larsen ..	Eskdale ..	71	295
J. H. Ford ..	Kiewa ..	62	295
Howlett Bros. ..	Cobden ..	68	290
M. P. Larkin ..	Eskdale ..	64	290
C. Dowel	Korumburra ..	61	287
Kinsella Bros. ..	Lang Lang ..	71	285
Horne and Horne ..	Warrnambool ..	71	285
T. Ley	Eskdale ..	63	282
Woodmason Bros. ..	Camperdown ..	64	280

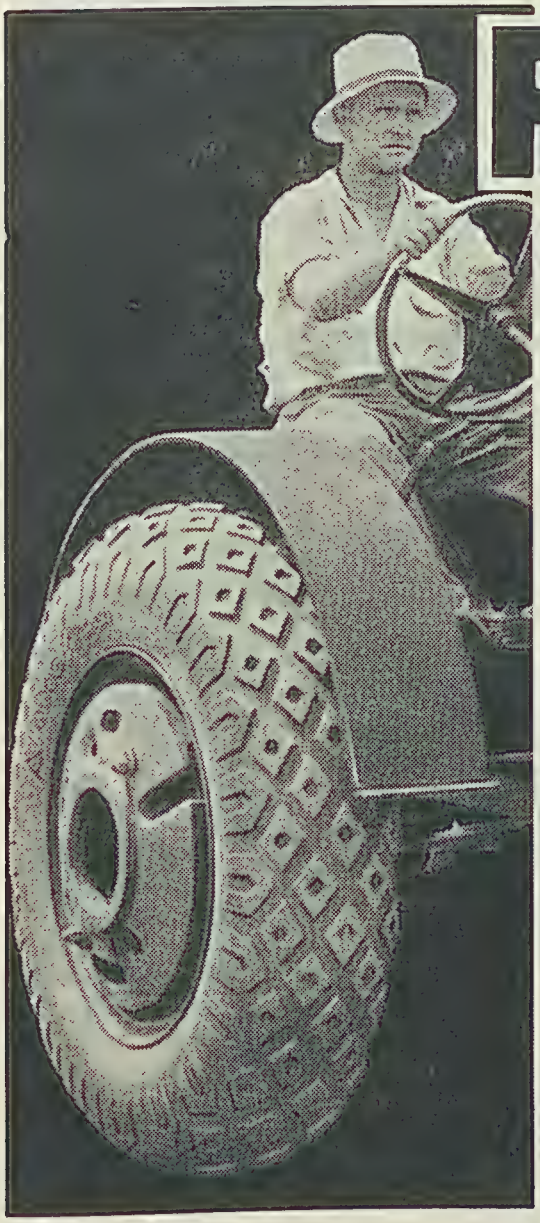

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TABLE V.—HIGH-PRODUCING HERDS OF MORE THAN 80 (IN ORDER OF MERIT).

Owner.	Association.	No. of Cows.	Average Yield Butter-fat.
			lb.
J. Coolahan ..	The Sisters ..	104	318
Macknamara Bros. ..	Werribee ..	86	318
F. J. Webster ..	Maffra ..	99	312
J. Moore and Co. (No. 5)	Yarram ..	102	298
J. R. Manson and Son (No. 2)	Maffra ..	86	297
E. and J. Herney ..	Warrnambool ..	82	296
J. Moore and Co. (No. 1)	Yarram ..	89	292
E. Wright ..	Woodford ..	84	290
J. Moore and Co. (No. 3)	Yarram ..	99	288
A. L. Vagg ..	South Purrumbete	121	288
R. A. Borch ..	Nalangil ..	86	288
C. Glennon ..	Noorat ..	81	282
O'Connor Bros. ..	Warragul ..	85	281
J. Mitchell ..	Tallangatta ..	81	270
N. McKinnon ..	Warrnambool ..	87	268
J. Moore and Co. (No. 7)	Yarram ..	97	257
J. Murnane ..	Noorat ..	84	257
G. M. Black (No. 31)	Tarwin Lower ..	104	255
J. Blain	Keayang ..	100	248
L. A. Lee	Cohuna ..	82	247
E. P. Carey ..	Traralgon ..	100	243
T. Clifford ..	Keayang ..	90	242
J. Pearson ..	Ecklin ..	101	241
H. Addersall ..	Macarthur ..	88	241
H. Napper (No. 2) ..	Sale	110	240

Prominent Individual Cows.

Of the 79,701 cows tested, 21.7 per cent. yielded at least 300 lb. butter-fat; in no previous year has such a high percentage reached this level. Included in the number were 2,257 which produced over 400 lb.; 167 of these gave over 500 lb., and fourteen over 600 lb.

Many influences go to the making of a production record; they include, breeding, feeding, age, period of calving, seasonal conditions, and, just as important as any, management. To secure a place among the first twenty in a test such as this, a cow must be of exceptional quality. What then can be said of such cows as Mr. F. Webster's "Julia," Mr. P. Gannon's "Pansie," Mr. G. Clyne's "Graceful," Mr. R. Rautman's "Creamy" (all belonging to the Maffra Association), Mr. D. McRae's "Pansy" (Wonthaggi), Mr. S. R. Knight's "Babs" (Toora-Welshpool), and Mr. A. Robinson's "Lucy" (Rochester), all of which have appeared at least twice in a "best twenty" group.

In this year's group Mr. McRae's "Pansy" has a namesake in the group—a cow owned by Messrs. J. Handbury and Son. Mr. McRae's cow, however, has the great distinction of having exceeded the 650 lb. mark in each of the two past years. Mr. Knight's "Babs" this year gave 643 lb.; last year her yield was 636 lb.

A well-finished stack of grass ensilage on the farm of Mrs. M. A. Poole, at Caldermeade.

Messrs. Walker Bros. "No. 226," through her sire, is a granddaughter of the Standard Herd Test Champion of 1919. Her average test was more than twice that of Mr. H. E. McFarlane's registered Friesian, yet each cow occupies a foremost place in this year's list. Mr. E. Gadd's "Brindle" (626 lb.) and Mr. A. Sim's "Coady" (622 lb.) this year give new herds representation in the "best twenty" group. "Coady" has a previous record of 523 lb.; two of her daughters have each exceeded the 400 lb. mark. "Killarney," who occupies eleventh place in this year's "best twenty," is owned by Messrs. A. G. and B. Clyne, whose herd has on four earlier occasions been represented in this group.

The herds of Messrs. Sharples, of Jindivick, Bleckley, of Warragul, and J. G. Howell, of Leongatha, have been prominent in the test for many years, but until this year no member of them had won a place amongst the "best twenty." Mr. Howell's "Beverley," which yielded 617 lb., had a remarkable dam. She has produced sixteen calves and now, at the age of nineteen, she is in calf again. When fourteen years of age she produced 475 lb. of butter-fat, and the following year 442 lb.

It was unfortunate for Mr. P. Gannon, of the Maffra Association, that his cow "Pansie," last year's champion producer, died just when it seemed she would eclipse her previous record. The herd, however, was represented in this year's "best twenty" by "Bradman" (608 lb.); this cow, like many others in the group, was sired by a grade Jersey bull.

Cutting meadow hay on Mr. H. Furphy's farm at Dumbalk North.

Mr. Prince's "Bonnie" is a daughter of "Peerless Eclipse of Meadow Vale." This bull was bred from the champion herd of the 1920 Standard Herd Test. It was progeny of this bull which in 1932 largely helped Mr. S. Masters' herd to attain the highest record ever made by an Association herd in Victoria.

Mr. E. B. Neave, of Callignee, is a member of the Traralgon Association. His herd of twenty averaged 442 lb. butter-fat; three of them exceeded the 500 lb. mark; of these "Ruth" appears in the list of the "best twenty" with a yield of 588 lb. Her sire was a registered Jersey.

TABLE VI.—SUMMARY OF HERD TEST ASSOCIATION DATA FOR YEAR ENDED 30TH JUNE, 1935, AND COMPARATIVE FIGURES FOR PREVIOUS YEARS.

Area.	Units.	Herds.	Tested Cows.	Junior Cows under Test.		Pure-bred Bulls.		Average Number of Cows in Herds.	Average Production per Cow.		
				Number.	Per-centage.	Number.	Per-centage.		Milk (lb.).	Per-centage.	Butter-fat (lb.).
Gippsland ..	46	1,010	30,617	14,463	47·0	795	78·0	31·0	5,442	4·76	259·0
Western ..	35	746	27,746	11,615	42·0	624	83·0	37·0	5,304	4·41	244·0
Goulburn Valley ..	16	377	10,263	5,476	53·0	302	80·0	27·0	5,414	4·45	241·0
North-Eastern ..	16	313	10,914	4,562	41·0	270	81·0	35·0	4,842	4·81	233·0
Totals ..	113	2,446	79,701	36,116	45·3	1,991	81·4	32·6	5,309	4·59	244·0
DATA OF PREVIOUS YEARS.											
1933–34 ..	134	2,910	92,953	43,394	46·0	2,214	76·0	31·7	4,723	4·51	212·0
1932–33 ..	141	3,383	104,009	46,392	44·6	2,619	77·0	31·0	5,290	4·55	241·1
1931–32 ..	130	3,098	89,619	36,946	41·3	2,323	75·6	29·0	5,393	4·58	247·3
1930–31 ..	132	3,085	90,360	32,867	36·4	2,251	73·0	29·0	5,383	4·30	234·0
1929–30 ..	116	2,604	76,032	24,439	32·1	1,653	71·0	29·0	4,944	4·59	226·1
1928–29 ..	96	2,229	63,277	19,246	30·4	1,354	64·0	30·0	5,080	4·38	223·3

NOTE.—This table shows that there was a loss of 1,137 herds—approximately 34 per cent.—compared with the peak year 1932–33; the decrease in the number of cows was nearly 24 per cent., and it is evident that the losses have been heaviest among the smaller herds. The average butter-fat yield has only once been exceeded. The percentage of pure bulls in use is a record. The average butter-fat test, herd size, and percentage of Junior Cows remain approximately the same.

TABLE VII.—TESTED COWS GROUPED ACCORDING TO AREA AND PRODUCTION OF BUTTER-FAT WITH COMPARATIVE FIGURES FOR OTHER YEARS.

Area.	Tested Cows.	Lb. Butter-fat Range.						
		Over 800 lb.	700 to 800 lb.	600 to 700 lb.	500 to 600 lb.	400 to 500 lb.	300 to 400 lb.	200 to 300 lb.
Gippsland	30,617	..	..	12	108	1,178	7,397	14,956
Western	27,746	..	1	1	27	413	4,190	13,525
Goulburn Valley ..	10,263	..	..	..	24	338	1,873	4,635
North-Eastern ..	10,914	..	..	..	8	147	1,577	4,908
Totals ..	79,701	..	1	13	167	2,076	15,037	38,024
DATA OF PREVIOUS YEARS.								
1933–34	92,953	..	3	6	130	1,403	11,781	41,630
1932–33	104,009	..	1	18	202	2,328	15,880	50,070
1930–31	90,360	1	5	25	219	2,415	16,044	42,278
1928–29	63,277	1	1	12	111	1,108	8,936	28,355

NOTE.—During 1934–35 45·3 per cent. of all the tested cows were under four years of age at the beginning of the test period. In all, 17,294—34 per cent. more than in the preceding year—exceeded the 300 lb. level. The actual percentage (21·7) is the highest ever recorded, and compares more than favourably with 14·3 per cent. in 1934, 18 per cent. in 1933, 20 per cent. in 1930, and 16 per cent. in 1928.

In future reports an effort will be made to give some notice to "long distance producers," as the continuous heavy yielders are sometimes termed. Secretaries and members of Associations are asked to co-operate with the Department by supplying particulars of any such cows.

Herd Testing in Other Countries.

According to a report issued in 1935 by the International Institute of Agriculture on "Dairy Cow Testing throughout the World," there were in 1934 at least 4,500,000 dairy cows under test in 34 dairying countries, and 14,000 recording officers made periodical visits to some 285,000 farms. Ten years earlier there were 1,800,000 cows under test in twenty countries. These figures include only those bodies which conduct herd-testing work on approved lines. It is known also that at the end of 1929 some 34,626 members of 785 Milk Recording Associations were at work in Russia, and as some progress undoubtedly was made under the five years' plan it is probable

TABLE VIII.—TESTED HERDS GROUPED ACCORDING TO AREA AND PRODUCTION OF BUTTER-FAT, 1934–35.

Area.	Herds.	Lb. Butter-fat Range.						
		Over 400 lb.	350 to 400 lb.	300 to 350 lb.	250 to 300 lb.	200 to 250 lb.	150 to 200 lb.	Under 150 lb.
Gippsland	1,010	7	45	166	359	294	116	23
Western	746	2	6	72	208	305	146	7
Goulburn Valley ..	377	4	16	61	117	10	58	19
North-Eastern ..	313	1	7	41	86	113	54	11
Totals ..	2,446	14	74	340	770	814	374	60
DATA OF PREVIOUS YEARS.								
1933–34	2,910	19	66	314	609	990	762	150
1932–33	3,383	53	154	476	993	1,141	479	87
1930–31	3,085	42	127	433	870	1,112	461	40
1928–29	2,292	9	46	181	396	789	559	139

NOTE.—During 1934–35 there were 428 herds which exceeded the 300 lb. butter-fat level—5 per cent. more than in the previous year, when 13 per cent. were successful. Only 60 herds fell below the 150-lb. level—50 per cent. less than in the previous year—a striking illustration of the effect on production in borderline districts when good Summer and Autumn rains make green fodder and pastures available for an extended period.

Some Outstanding Performers.

1. E. B. Neave's "Annie", 521 lb. as a sen. three-year-old. 2. A. E Blechley's "Fairy", 611 lb. 3. A. J. Matthey's grade Jersey, highest producer for the year with a yield of 791 lb. 4. J. G. Howell's "Beverly", 617 lb. 5. H. H. Prime's "Peg Top", 525 lb. 6. E. A. Swayne's "Freezer", over 3 lb. butter-fat per day. 7. E. B. Neave's herd at Callignee. 8. A. J. Matthey's herd at Geelong. 9. E. B. Neave's "Ruth", 588 lb. 10. S. B. Knight's "Babs", 643 lb. The heifer at foot, as a jun. two-year-old, produced 13 lb. butter-fat per day. 11. H. H. Prime's "Beauty's Duke of St. Albans", sire of all the cows in Mr. Prime's high-yielding herd of 13 cows, which averaged 417 lb.

that the numbers to-day are substantially greater.

The report indicates that Denmark is still the centre of herd-testing. There, 40 per cent. of the cows are under organized testing, while Danzig follows closely with 37 per cent. of cows under test. Germany far exceeds all others in the volume of work, more than 1,135,000 dairy cows being tested there. For comparative purposes, it may be pointed out that Germany has 555 more recording associations *than Victoria has testing herds.* In all of the north, and a greater part of central Europe, a large percentage of the cows are tested.

Cutting cow grass at Dean's Marsh.

TABLE IX.—TWENTY LEADING COWS, WITH DETAILS OF OWNERSHIP, IDENTIFICATION, BREED OF SIRE, AGE, PRODUCTION, ETC.

Owner.	Association.	Name of Cow.	Brand.	Milk.	Test.	Butter-fat.	Sire.
				lb.		lb.	
A. J. Matthey ..	Geelong ..	Flo	5:5 8	14,298	5·54	791	Unknown
Walker Bros. ..	Yinnar ..	No. 226 ..	Y:25 226	9,922	6·9	685	Butterwinks 3rd of Jersey Hill
D. McRae ..	Wonthaggi ..	Pansy	A:42 17	11,900	5·58	663	Unknown
H. E. McFarlane ..	Warragul ..	Roads End Ianthe	REGSTD	19,228	3·36	650	Burnbank Iona Alcartra
H. Furphy ..	Dumbalk North	Lily	D:16 52	12,618	5·1	644	Unknown
S. B. Knight ..	Toora-Welshpool	Babs	W:36 1	12,078	5·32	643	Pure Jersey
E. Gadd ..	Traralgon ..	Brindle ..	E:61 1	11,950	5·23	626	Unknown
A. Sim	Ondit-Irrewarra	Coady	Æ:10 79	11,539	5·4	622	Reg. Jersey
J. G. Howell ..	Leongatha ..	Beverley ..	L:14 47	11,275	5·47	617	Grade Jersey, Jimmy
A. E. Bleckley ..	Warragul ..	Fairy	G:13 26	11,185	5·46	611	Grade Jersey
A. G. and B. Clyne	Maffra ..	Killarney ..	V:1 98	13,412	4·55	610	Retford Jersey, Premier
H. Scharples ..	Jindivick-Neerim	Nellie Bly ..	J:42 29	10,024	6·07	609	Grade Jersey
P. Gannon ..	Maffra No. 3 ..	Bradman ..	8V:2 42	14,095	4·3	608	Grade Jersey
J. Handbury and Son	Toora-Welshpool	Pansy	W:40 1	10,598	5·72	605	Reg. Jersey
H. Furphy ..	Dumbalk North	Rosina ..	D:16 6	13,049	4·56	595	Grade Jersey, Bill
W. R. Prince ..	Swan Hill ..	Bonnie ..	S:42	8,544	6·92	592	Peerless Eclipse of Meadow Vale
E. B. Neave ..	Traralgon ..	Ruth	E:41 1	11,525	5·58	588	Melview Vanilla Starbright's Lad
A. J. Matthey ..	Geelong ..	Vera	5:5 15	10,372	5·66	587	Pure Jersey
H. J. Axford ..	Kongwak ..	Buttons ..	K:1 46	11,761	4·9	586	Unknown
McGennan Bros. ..	Warrnambool ..	Muriel ..	W:1 95	13,073	4·48	585	Unknown

SOME OF THE PROMINENT HERDS, TOGETHER WITH PARTICULARS REGARDING HERD SIZE, PRODUCTION, AND BUTTER-FAT RECORDS OF LEADING COWS.

Member's Name.	Herd Association.	Particulars of Herd.			The 1934 Records of the 500 lb. Butter-fat Producers of each Herd.
		Tested Cows.	Milk.	Butter-fat.	
			lb.	lb.	
H. Furphy	Dumbalk North	41	8,350	422	644, 595, 572, 561, 552, 534, 533, 524, 519
A. J. Mathey	Geelong	30	7,673	417	791, 587, 532, 523, 520, 512, 505
G. Gwyther	Leongatha	30	6,764	351	538, 531, 531, 530, 526, 505
J. G. Howell	Leongatha	49	7,790	386	619, 566, 563, 560, 548
E. Gadd	Traralgon	23	7,918	416	625, 543, 543, 533, 521
G. Stanlake	Loch	20	8,117	449	549, 548, 515, 515
A. Bleckley	Warragul	21	7,919	396	611, 572, 530, 524
A. G. and B. Clyne ..	Maffra	71	6,775	323	610, 536, 522
W. J. Axford	Kongwak	60	6,824	325	586, 552, 505
P. Glover	Loch	43	7,058	359	544, 538, 531
W. J. Reid	Gainsborough	40	6,487	321	568, 520, 500
Mrs. J. M. Scott	Geelong	38	7,102	356	568, 521, 512
C. Bubb	Narracan	27	7,192	368	563, 526, 520
R. Anderson	Rochester	21	8,072	412	546, 512, 510
E. B. Neave	Traralgon	20	8,308	442	588, 552, 514
MacNamara Bros. ..	Werribee South	86	7,079	315	554, 518
D. MacRae	Wonthaggi	37	6,927	357	663, 535
P. Gannon	Maffra	36	7,155	339	608, 535
M. Considine	Dumbalk	33	8,280	393	544, 502
A. E. Finn (senr.) ..	Leitchville	31	7,178	323	543, 506
W. Edney	Jindivick–Neerim	27	7,685	383	524, 503
G. McColl	Bunyip	28	6,733	348	539, 504
T. McClusky	Tongala	27	6,541	338	569, 517
A. MacPhie	Mirboo North	26	7,034	397	536, 511
E. Swayer	Stanhope	25	8,268	405	553, 506
H. Sharples	Jindivick–Neerim	23	7,082	387	609, 522
J. Smith	Warragul	23	5,861	343	559, 542
F. Savage	Narracan	18	7,569	384	545, 508
R. Rautman	Maffra	17	6,884	402	544, 539
C. J. Pierce	Rochester	15	7,177	357	549, 507
Mrs. Soutar	Rochester	..	..	..	553, 511

In round figures Germany has 76,000 testing farms, Denmark 50,000, Finland 20,400, Sweden 18,000, Holland 15,000; while Latvia and the United States of America each have 14,000 herds and New Zealand 6,000. In thirteen other countries upwards of 2,000 farms are associated with organized herd test work. Generally, the greatest volume of test work is in those lands where test work has been longest developed. In ten countries, upwards of 100,000 cows are being systematically tested.

With the exception of Australia, all countries test for a period of 300 days or longer; in a few cases, the whole of the lactation is taken. Generally the sub-periods are of 30 days, although sometimes bi-monthly visits of the tester are considered satisfactory. The checking period is generally of 24 hours, although in some official tests, and in Japan, a 48 hours' check is made. There is a rule in many countries (as in the Standard and Association Tests in Victoria) for the recorder to take a 48 hours' test when considered necessary.

That the herd-testing movement has made such constant progress during the past ten years should be regarded as ample proof of its value to the dairying industry.

Types of Organization.

There are three main types of organization in existence, viz.:—

(1) Organizations established for milk recording, but also carrying out other subsidiary activities (such as pig recording and co-operative selling, &c.).

(2) Independent organizations carrying out milk recording—the principal and original aim, however, not being milk recording (such as Breed Societies).

(3) Milk recording performed by the State, or by a semi-official institution (as the V.U.C.T.A.).

The majority of overseas countries have followed the Danish system, under which small societies practise milk recording on the farms of members. In many countries, however, the State itself organizes the milk recording movement, and

GIPPSLAND AREA.

Association.	Herds.	Cows.	Butter-fat.	Junior Cows.	Pure Bulls.
				%	
Maffra No. 1	26	1,078	307	48	26
Dumbalk North	25	903	297	41	22
Yinnar No. 1	26	840	291	50	23
Loch	19	565	291	54	13
Narracan No. 3	26	595	288	53	23
Dumbalk	16	455	283	50	13
Jindivick–Neerim No. 2	21	438	279	46	15
Narracan No. 2	25	476	278	43	18
Maffra No. 3	26	994	277	50	20
Maffra No. 4	25	990	271	53	14
Mountain View	21	587	270	48	15
Yarram No. 1	17	637	270	58	9
Maffra No. 2	25	96	269	53	14
Warragul No. 1	24	703	265	46	23
Leongatha No. 1	18	502	265	49	13
Mirboo North	26	658	265	44	17
Wonthaggi	23	594	263	50	22
Pakenham	27	678	262	47	25
Korumburra No. 1	26	902	262	49	21
Toora–Welshpool	28	958	262	42	25
Warragul No. 2	27	642	262	51	18
Bunyip	23	488	260	62	19
Gainsborough	16	638	260	47	13
Jindivick–Neerim No. 1	18	417	258	45	15
Leongatha No. 2	18	587	258	58	9
Korumburra No. 2	27	821	257	48	21
Traralgon No. 1	18	747	254	46	16
Kongwak	26	942	253	34	23
Leongatha No. 3	23	601	252	42	12
Poowong No. 1	16	539	251	55	11
Traralgon No. 2	23	886	250	45	17
Sale	22	734	242	40	16
Stony Creek	21	587	242	46	23
Peninsula	23	403	240	50	19
Fish Creek	26	643	240	38	16
Yarram No. 2	21	755	238	50	17
Poowong No. 2	20	727	235	42	15
Lang Lang	23	676	233	49	21
Yinnar No. 2	18	368	232	38	8
Bairnsdale	10	289	229	32	9
Foster	25	626	226	50	20
Warragul No. 3	25	667	222	45	14
Boolarra	23	547	219	52	27
Orbost	13	509	205	47	8
Tarwin Lower	14	814	198	25	21

NORTH-EASTERN AREA.

Association.	Herds.	Cows.	Butter-fat.	Junior Cows.	Pure Bulls.
				%	
Eskdale No. 1	17	722	275	27	12
Myrtleford	25	704	267	41	22
Eskdale No. 2	14	540	262	42	7
Swanpool No. 2	23	533	248	51	23
Corryong No. 2	16	606	241	31	22
Tallangatta No. 1	22	926	236	46	22
Kiewa No. 2	19	956	230	39	17
Alexandra	15	523	226	35	15
Swanpool No. 1	22	694	225	43	26
Millewa No. 1	23	605	222	40	14
Euroa	25	478	217	36	15
Tallangatta No. 2	23	903	216	56	12
Moyhu No. 1	20	621	212	47	13
Kiewa No. 1	20	823	210	48	18
Corryong No. 1	18	839	207	38	23
Walwa	11	441	188	40	9

WESTERN DISTRICT AREA.

Association.	Herds.	Cows.	Butter-fat.	Junior Cows.	Pure Bulls.
				%	
Warrnambool	22	1,110	275	31	31
Woodford	15	753	265	34	20
Dreeite South	26	844	260	51	25
Geelong	24	524	260	45	24
Winchelsea No. 1	26	829	259	49	20
Ballarat	16	320	258	46	16
Camperdown	22	825	257	37	21
Gellibrand Valley	26	909	253	41	13
Cobden	23	856	253	43	11
Beeac	29	977	250	47	25
Macarthur	7	323	248	49	7
Winchelsea No. 2	27	660	247	48	19
Nalangil No. 2	23	898	241	42	17
Portland	17	418	241	52	10
The Sisters	21	854	239	45	18
Pomborneit	19	809	238	43	17
Keayang	4	378	237	49	11
Apollo Bay	25	671	235	41	14
Port Fairy	23	709	233	40	14
Port Campbell	27	1,036	233	..	..
Ondit and Irrewarra	23	973	233	48	23
Noorat	25	1,339	231	39	28
Condah Swamp	21	690	230	43	24
Casterton	26	726	228	48	18
Ecklin	24	1,003	228	39	20
Nalangil No. 1	28	1,118	228	45	29
South Glenelg	18	280	220	38	12
Bacchus Marsh	27	891	219	37	20
Newstead	24	628	208	42	17
South Purrumbete	23	1,035	206	40	5
Coleraine No. 3	14	862	202	40	24
Kolora	16	875	201	34	19
Mortlake	21	661	200	44	10
Coleraine No. 1	21	890	196	46	20
Wurt Wurt Koort	13	1,072	194	28	22

in all countries its influence in the movement is more or less important. Where the State does not itself carry out milk recording it almost invariably subsidizes the movement with grants, which nearly always represent a high percentage of the total expenditure. The bodies are generally strictly controlled by rules and regulations established by the State, or by a central authority approved of by the State.

Recording Staff.

In the majority of countries preliminary instruction is required of recorders. In some countries (as in Victoria) recorders are required to pass an examination before being allowed to practise, the appointment being subject to the approval of the State. In Finland, recording work is carried out exclusively by women. In some countries all recorders, and in others, only the higher officers are functionaries of the State.

Private milk recording by a breeder, or farmer, is of importance only to the person concerned. In Sweden, Queensland, and New Zealand a system exists wherein the milk samples are taken by the farmer and forwarded to a central depot for testing. Generally, however, the type of milk recording practised by all countries is that by an official recorder employed by the organization. Many associations make surprise visits, the object being to prevent the owner disguising the actual yield obtained under normal conditions. In some countries the owner must make frequent tests in

GOULBURN VALLEY AREA.

Association.	Herds.	Cows.	Butter-fat.	Junior Cows.	Pure Bulls.
				%	
Rochester	24	481	315	52	15
Werribee South ..	16	530	301	60	13
North Shepparton ..	25	545	270	53	24
Swan Hill	24	468	269	56	24
North Murchison ..	26	588	255	60	22
Stanhope No. 1 ..	21	497	254	54	20
Stanhope No. 2 ..	21	492	250	65	16
Undera	27	570	231	52	13
Cohuna No. 1	24	991	228	60	18
Leitchville No. 1 ..	25	1,004	227	48	25
Tongala No. 1	26	875	227	45	29
Kerang No. 1	23	708	222	50	15
Kerang No. 2	24	641	222	53	25
Calivil	21	423	220	49	9
Pyramid	26	710	208	41	13
Leitchville No. 2 ..	24	740	203	46	21

Portion of the good water supply on the farm of Mr. G. Stanlake.

Mr. Stanlake's well-fed, selected heifers from high-producing cows.

addition to that of the official tester. Milk weights are taken daily by the farmer or breeder and checked at different intervals of from seven to fourteen days, and as many as 70 days in Tyrol (Austria), the usual interval being 30 days.

During the past few years the tendency has been for a longer period between the visits of the testers. Among the reasons given is that of encouraging greater numbers of breeders to join the milk recording movement. This has been facilitated by the fact that it has been possible to prove that with testing at periods of not more than 30 days the error has not been serious.

In most cases recording begins on the day of calving. The United States of America and the Irish Free State make the fourth day the maximum delay; while Rhodesia, South Africa, and Australia begin on the fifth day; and Italy, France, and Spain on the eighth day. Butter-fat tests generally are not made during the first few days after calving.

In Belgium, stock-breeding syndicates carry out recording during the whole of one lactation, and in Rhodesia and South Africa during the whole life. Generally, however, breeders can have their cows tested for as long as they wish. Because the milk yield depends largely on the interval between successive calvings, and so that cows not carrying will receive no advantage—a maximum period for re-calving usually is specified. This may be as few as 365 days, but generally it is 450 days, while in Canada it is 400 days.

Although two milkings per day are general, three and even four milkings occur in some types of tests. In England testing for butter-fat is optional, but generally it is considered one of the most important factors in the yield. In Austria, Belgium, and Luxemburg milk is still measured, but generally it is weighed on approved scales. Milk recording may include the quantity of milk produced—butter-fat content and food consumption of the cows; while, in the South African official test, also the solids not fat are determined.

Four different methods of testing milk for butter-fat are used, viz.: the Babcock, Gerber, Hoyberg, and Lindstrom. It may be said that the Babcock method is used in the Anglo-Saxon countries, and the Gerber method elsewhere. The Hoyberg is used to some extent in Norway and Finland; while the Lindstrom is used in Sweden and Norway.

Testing is done on the farm except in England, Spain, Canada, Sweden, Luxemburg, Switzerland, and Roumania. In the Association and Dairy System in New Zealand and the Standard Test in Victoria, testing is not done on the farm. Compulsory testing for feed consumption exists only in Denmark, Danzig, Spain, Esthonia, Latvia, Finland, Iceland, Lithuania, Norway, Sweden, and

Czechoslovakia. In some countries the determination of the quantity and composition of forage is made; while in other countries corrections are made in the yields of milk and butter-fat because of age and the length of period between calvings. In Belgium, in addition to the practice of making age allowances, cows that calve within twelve months from the preceding calving receive an allowance of 5 per cent. of their yield for each month in advance, while 5 per cent. is deducted for each month's delay, with a maximum of 15 per cent. The position of the testing day in the sub-period also has received much attention. In a few cases, as in Scotland, Holland, United States, and Australia, the testing day falls in the middle of the sub-period; generally it is arranged for the end of the sub-period.

Utilization of Records.

In the majority of countries the aim of milk recording in respect to stock breeding is clearly demonstrated by registering the records in herd-books and pedigree registers. In some countries, special books have been instituted for animals which have reached minimum yields, and which satisfy certain other conditions. These are termed "Advanced Registers" or "Registers of Merit." In Scotland there is the "Register of High Yielding Cows," while England and Ireland have their "Register of Dairy Cows." Generally there exists a distinction for age, and in some countries between large and small breeds, when certificates of record are being made. Naturally there are great differences in the various countries in the qualifying conditions for these certificates. In Scotland, Hungary, and Switzerland calving must not be delayed beyond fourteen months from the last calving. In England and Wales three calves in three years are required, while qualifications for breed type, and minimum yield, are common in many countries.

Milk recording is of particular value for the selection of sires. Many countries have undertaken systematic selection of bulls, based on the yield of the dams, daughters, and other members of the family. In England and Wales a bull may obtain a "Certificate of Merit" if pedigreed and possessing a dam and sire's dam that have reached the prescribed standard *during three successive years.* In Germany, Hungary, Switzerland, Canada, Finland, and Denmark production records are required when a bull receives a "Certificate of Merit." In Scotland, England, United States, New Zealand, and Australia there are "proven bull" schemes under which the value of the bull as a sire is calculated according to the compared yields of his mates and their daughters. In Luxemburg, from 1936, sires will be sold only if their progenitors possess a performance certificate.

Recording Methods.

Since the yield of milk is not tested daily the results can only be regarded as a basis on which the total yield of the animal is estimated. Because it is known that considerable variations of milk yield and butter-fat test occur, the various systems of recording have been the subject of considerable investigation. Most of the investigators have made their comparisons with the actual yield of the cows studied, the milk yield being weighed and tested daily.

In a review of these investigations the International Institute of Agriculture points out that the main features of the work reviewed were—

(1) Frequency of recorder's visits or intervals between visits;

(2) Length of each test period;

(3) Method of calculating the total yield of a lactation based on record obtained; and

(4) Inaccuracies due to weighing and measuring of the milk and to reading the butter-fat test.

(1) The frequencies most used are 7, 14, 21, 30 and 60 days. The general finding favours the opinion that the greater the frequency the more accurate the result. A greater number of studies deal with the 30-day test. All agree within very narrow limits. The average *maximum error* is found to be approximately 10 per cent. For all practical purposes sufficiently accurate results may be obtained when the recorder's visits are at 30-day intervals.

(2) The general length of a test is 24 hours, and comprises all of the milkings of the day. A longer duration is sometimes recommended where recorders must cover long distances and the reduction in accuracy due to lesser frequency must be counterbalanced by prolonging the testing period. It was found that, although the 48-hour "test period" increased accuracy, frequency of test was a more important factor than length of test.

(3) The method of calculating the total yield on the records obtained has received considerable attention. In consequence of the regular variation in the production of a cow during the course of one lactation, there being a progressive reduction in milk quantity and an increase in the fat content, the position of the recording day in each sub-period is of considerable importance for the

calculation of the total production of the lactation. Sometimes the "test day" terminates the sub-period, sometimes it precedes it, while sometimes (as is general in Australia) the test day is situated in the middle of the sub-period. American workers definitely proved that greater accuracy can be obtained when the "test day" is in the middle of the sub-period, even when the intervals between the recorder's visits are greater.

Several methods are employed in calculating the yield of the lactation. In some cases the average figures of all the "test days" in a lactation are found, and these figures of milk and butter-fat yield multiplied by the number of days in the full recorded period of lactation. Vogel (Germany), however, found that the most accurate figures were obtained when each sub-period production was obtained separately, and then added together—as is done in both Victorian systems.

It has been found that the principal inaccuracies recorded are due to the great variations which occur in the milk yield and in the fat content at the beginning and end of the lactation. Further investigation on this phase of the work is being carried out.

(4) Lapland (France) has drawn attention to the fact that errors due to the lack of dry milking, errors in milk weighing, and to the inexact reading of the fat test, have a bearing on the final result as important as errors due to "frequency" and "duration of test." However, these errors are well known in practice, and can be avoided by due care and honesty in carrying out the test.

DEVELOPMENT OF MILK RECORDING IN VARIOUS COUNTRIES.*

Country.	Foundation Years of First Association.	Years to which Figures Refer.	Number of Milk Recording Organizations or Recorders.	Number of Farms Practising Milk Recording.	Number of Tested Cows.	Percentage of Cows Tested to Total Number of Dairy Cows.	Duration of Total Test (Days).	Duration of Each Test (Hours).	Duration of Period between Tests (Days).
Germany	1897	1934	3,001	75,665	1,135,870	11·2	365	24	14–28
Austria	1900	1933	881	47,449	47,449	3·5	365	24	28
Belgium	1919	1933	..	..	26,339	2·9	365	24	30
Denmark	1895	1933–34	1,588	49,993	701,087	39·6	365	24	10–30
Danzig	1920	1933–34	40	802	14,748	36·8	365	24	28
Spain	1933	..	..	..	..	..	..	24	30
Estonia	1909	1934	225	5,004	37,816	9·4	365	24	30
Irish Free State	1910	1934	205	4,186	49,052	4·0	315	24	45
Finland	1898	1931	927	20,456	239,069	18·4	..	24	30
France	1905	1934	61	1,650	20,603	0·5	300	24	24–36
England and Wales	1914	1932–33	49	4,598	135,902	4·6	365	24	45–56
Scotland	1903	1933	39	741	32,456	13·0	365	24	28
North Ireland	1921	1934	73	2,544	15,050	6·0	365	24	45
Hungary	1897	1932–33	53	508	20,111	2·2	365	24	15–30
Iceland	1903	1933	89	2,128	5,418	26·0	365	24	121
Italy	1922	1935	995	8,274	47,988	1·8	280	24	15–30
Latvia	1904	1934	846	14,033	118,799	14·7	365	24	15–30
Lithuania	1923	1933–34	137	2,634	33,201	4·0	365	24	14–30
Luxemberg	1933	1934	72	..	..	..	365	24	15
Norway	1898	1933	524	9,104	97,767	12·0	365	24	21–30
Netherlands (Official)	1899	1932	781	15,185	159,157	12·2	330	24	14–28
Poland	1904	1933–34	259	5,237	68,658	1·1	365	24	14–30
Roumania	1930	1934	12	1,213	1,966	0·1	365	24	14–21
Sweden	1898	1932–33	931	17,803	300,855	14·7	365	24	14–21
Switzerland	1922	1932–33	628	5,000	8,136	0·9	300	24	60
Czechoslovakia	1903	1934	144	4,768	33,867	1·3	365	24	30
Argentine	1911	1934	4	33	2,389	0·1	Lactation	24	30
Canada (Record of Performance)	1911	1934	..	..	14,883	1·7	365	48	45
Canada (Association)	..	1933	332	4,351	43,688	1·7	365	24	60
United States (Breed Associations)	1883	1934	..	..	9,600	1·3	365	24–48	30–60
United States (Cow Test Associations)	1906	1934	793	13,694	325,837	1·3	365	24	30–60

* International Institute of Agriculture, Rome.

DEVELOPMENT OF MILK RECORDING IN VARIOUS COUNTRIES—*continued.*

Country.	Foundation Years of First Association.	Years to which Figures Refer.	Number of Milk Recording Organizations or Recorders.	Number of Farms Practising Milk Recording.	Number of Tested Cows.	Percentage of Cows Tested to Total Number of Dairy Cows.	Duration of Total Test (Days).	Duration of Each Test (Hours).	Duration of Period between Tests (Days).
Japan	1911	..	..	..	..	..	365 305	48	30
Southern Rhodesia ..	1929 1932	1933	2	42	1,600	..	365	24	30
							300	24	60
South Africa	1917	1934	32	574	10,643	..	365	48	30
	1923	..	..	..	..	..	300	24	50
New South Wales (Pure Breed Scheme)	1912	1932–33	..	..	5,214	6·8	273 365	24	30
New South Wales (Herd Test Associations)	1912	1932–33	..	2,500	63,882		273	24	30
Victoria (Standard Test) ..	1912	1932–33	..	271	2,862	13·4	273 365	24	30
Victoria (Herd Test Associations)	1921	1932–33	..	3,383	104,009		273	24	30
Queensland (Pure Breed Scheme)	1910	1933	..	1,000	700 12,000	..	..	48	..
Western Australia (Herd Test Associations)	1932	1933	..	..	4,000	..	..	24	30
South Australia (Pure Breed Scheme)	1912	1933	..	..	650	..	..	..	..
South Australia (Herd Test Associations)	1920	1933	..	100	2,500	..	273	24	30
Tasmania (Pure Breed Scheme)	1914	1932–33	..	..	263	7·2	..	24	30
Tasmania (Herd Test Associations)	1915	1932–33	..	28	5,623		273	24	30
New Zealand (C.O.R. Testing)	1912	1932	..	..	400	16·6	305	24	30
New Zealand (G.O.H. Testing)	1927	1932–33	..	..	1,525		365	24	..
New Zealand (Association Testing)	1909	1932–33	78	1,242	23,163		365	48	30
New Zealand (Group Testing)	1923	1932–33	200	5,090	253,016	..	365	24	30

Victorian F.A.Q. Wheat

Analysis of 1936 Sample

By W. R. Jewell, M.Sc., Agricultural Research Chemist.

AS is already known, the bushel weight (63½ lb.) of this year's F.A.Q. wheat sample is particularly high, being much higher than for many years. In appearance the sample is quite good, being bright and plump, and with a minimum of broken grain. While its protein content is not quite as high as last year, it approaches the average for the past few years and there is evidence to indicate that the quality of the gluten is very much improved over that of last year.

In accordance with past practice, a portion of this season's F.A.Q. sample has been critically examined and subjected to analysis and to a milling and baking test. The analytical results on the wheat itself are given in the following table, those for some years past being included for comparison:—

	1929.	1930.	1931.	1932.	1933.	1934.	1935.	1936.
Moisture (per cent.)	9·20	10·58	11·43	9·31	10·59	10·89	11·84	12·20
Impurities (screenings) per cent.)	3·4	2·7	3·5	6·7	8·7	4·8	8·6	4·9
Ash (per cent.)	1·26	1·33	1·47	1·41	1·39	1·36	1·61	1·41
Protein (N x 5·7) (per cent.)	10·11	10·87	10·97	9·66	9·35	9·53	10·93	9·74
Bushel weight (lb.)	61¾	62	58½	62¾	62	60	60	63½
Pelshenke figure (minutes)	..	..	..	..	..	24	24	26

The percentage of screenings, which include broken grain and grain less than 2 mm., in addition to husk, backbone and weed seeds, is very much less than last year. The moisture content, although slightly higher than usual, is still quite normal. The slight improvement in Pelshenke figure is one indication of improved gluten quality.

Flour.

The wheat milled easily and cleanly and a particularly high flour yield was obtained. Although the protein content of the flour, as in the wheat itself, is slightly lower than last year, both wet and dry glutens are at least as high. Comparative figures are given below:—

	1929.	1930.	1931.	1932.	1933.	1934.	1935.	1936.
Flour—								
Yield (per cent.)	70·4	73·2	73·4	72·8	73·2	72·8	71·7	73·6
Ash (per cent.)	0·41	0·49	0·54	0·56	0·49	0·51	0·56	0·48
Protein (N x 5·7) (per cent.)	9·20	9·54	9·58	8·65	8·02	8·79	9·39	9·00
Wet gluten (per cent.)	25·8	26·4	29·4	26·1	22·4	23·1	26·8	27·4
Dry Gluten (per cent.)	8·5	8·6	9·7	8·7	7·6	7·9	9·1	9·1
Water absorption (per cent.)	61·5	51·3	50·6	50·6	50·6	50·6	50·0	50·0
Maltose figure	..	..	..	..	141	195	84	159

The diastatic capacity of the flour, as measured by its "maltose figure," is almost twice that of last year and thus is at a much more satisfactory level. As with most Australian wheat, the diastatic capacity is still lower than is generally considered desirable to insure adequate gassing power, and one would expect this season's flour to be improved in baking quality by the addition of malt flour or malt extract.

This expectation is proved by experimental baking tests, in which the addition of malt flour makes a significant improvement in loaf volume. The improved quality of the gluten is borne out by physical tests and is reflected in the fact that this year the further addition of bromate makes a further improvement in loaf volume. It would appear that the addition of malt flour (or extract) is advisable, and also that this season's flour is likely to respond to mineral improvers to a much greater extent than was the case last season. The following baking tests support this contention:—

Volume of standard loaf	525 c.c.
Volume of standard loaf plus ½ per cent. malt flour	560 c.c.
Volume of standard loaf plus ½ per cent. malt flour plus potassium bromate (.001 per cent.)	580 c.c.

In general, it may be stated that from the point of view of both the miller and the baker, this season's wheat should show a considerable improvement over last year's.

Soil Fertility in the Orchard

Artificial and Green Manures

By Frank M. Read, M.Agr. Sc., Chief Inspector of Horticulture

FRUIT growers, as a class, are firmly convinced of the value of applying artificial fertilizers to their soils, and to-day that practice is general throughout the industry. There are, however, radical differences between the practices of even neighbouring orchardists, and most fertilizing programmes are characterized by a lack of definiteness.

During the last decade there has been a marked change in the character of the manures used in Victoria. Approximately £100,000 is expended annually by the horticultural industry on manures, and, whereas ten years ago the emphasis was largely on phosphatic fertilizers, it rests now more strongly on nitrogen.

Such a marked change in practice might suggest that a great deal of money has been wasted in artificial fertilizers, for there is no corresponding change in orchard conditions to account for the difference. It probably indicates also that at the moment a great deal of money still is being wasted, for he would be unduly optimistic who would say that we know at present all there is to be known about this important phase of orchard work.

It is also of interest to reflect that the widespread use of artificial fertilizers is not matched by consistent experimental results supporting their use. The reverse is rather the case. A study of the experimental results in this and other countries over the past half century does not give any clear indication as to the position likely to exist in Victoria. Briefly, one might say that no very definite response to fertilizers has been obtained from fruit trees in the heavier types of soil, even where manures have produced marked responses in annual crops or grass, and it would appear that in such soils a deficiency of any element shows itself on most other crops long before it is evident on fruit trees. Growers are often apt to estimate the advantages gained by trees from the response in the natural herbage beneath the trees. The two, however, do not always run parallel.

Nitrogen has caused a definite response in many places on soils of the sandy or gravelly

type, which are usually low in this constituent but it has not shown a consistent significant influence on heavier types of soil.

Lime seems to have produced no consistent response in trees under conditions which produce very marked responses in legumes and other crops.

Phosphoric acid, even in soils known to be comparatively low in that element, does not seem to have had anywhere a significant effect on the growth and yield of most fruit trees, certainly not apples,

Potash, until recently, had shown no remarkable effects on fruit trees, but since the war, as a result of the research work of the Long Ashton Station at Bristol, it has been established as an essential on many areas in England, and attention has been directed to it in other parts of the world. In America the use of potash has not yet been established on a definite basis, and the same may be said of Australia, although the opinion is growing that we may yet find, with better methods of use, a place for it.

A good crop of tick beans on a citrus grove; volunteer barley also is showing.

Organic Matter.

Everyone is agreed that, for an orchard to maintain fertility, the supply of organic matter must be maintained. In the natural state the soil supports a very varied population. There are first of all the trees, secondly beneath them are the surface plants, and within the soil are the teeming millions of tiny creatures, far too small to be seen by the naked eye, and known under the general name of soil organisms.

Orcharding, as it is generally practised in Australia, by clean cultivation and frequent stirring of the soil in the hot summer months, undoubtedly tends to upset the balance of nature by the elimination or, at all events, great reduction in the growth of the second group, the surface plants. The life and decay of the surface plants provides most of that organic matter which is required by the soil organisms in order that they may flourish, and it therefore follows that as the surface plants are reduced and the soil organic matter or humus is depleted the soil's population of organisms declines. The gravity of this change may be understood when it is realized that it is principally due to the life processes of the soil organisms that the soil nutrients become available to the trees, and so, as their number falls, soil fertility inevitably declines also.

A green crop of barley.

Natural herbage on a Beaconsfield orchard.

Unmanured for two years previously. The herbage is very scanty and yellow in colour. The tree trunks are almost completely visible.

It can therefore be taken as a maxim that *the yearly ploughing under of a liberal amount of green stuff is a first essential in orchard management,* and it is almost as true that where the growth of natural green stuff is abundant and is ploughed under suitably, the position on that orchard is generally quite satisfactory.

Provision of Green Manure.

There would appear to be three main methods of providing soil humus in addition to the application of farm yard manure and straw, and so on:—

1. We can sow a crop of peas, beans, oats, barley, rape, or, in fact, any crop which will grow well and give a good bulk within a few months. In general, the leguminous crops are preferable when they will grow strongly; but if they will not thrive the crop most suitable to the district should be sown. It is essential that such a crop be sown early so that it secures a good start before the cold weather comes. March is the best month from this point of view. I know many orchardists will say that they rarely have time to put in a green crop, and that, any way, harvesting operations extend into March, and later still, so that if a crop were sown it would be trampled on and spoiled. It is undeniable that some orchardists do, nevertheless, manage to sow the crop satisfactorily, generally by doing alternate rows in alternate years so that there is still room to reach every tree without walking or driving over the sown area.

2. We can establish such a plant as subterranean clover, which will reseed itself naturally. This has been done with apparently satisfactory results. There does not appear to be much difficulty in reseeding subterranean clover when it is ploughed under, as is the general rule at present, in September or later, for the plants go on maturing after ploughing, and until the surface is broken down by the cultivators and harrows. But the tendency in many districts now is toward earlier ploughing to avoid ascospore infection in the control of black spot of apples, to improve conditions for fruit setting, and to minimize competition for soil moisture between trees and greenstuff, and so on. If this desirable tendency be followed, therefore, it would be wise to leave the unploughed strips of clover between the trees until the seed has formed.

3. The third alternative which may be useful as a stop-gap, but which would not appear to be as permanently satisfactory as the two above, is to allow the miscellaneous herbage to grow by ceasing cultivation in late February or early March. This can probably be encouraged by top-dressing with artificial fertilizers in autumn.

Natural herbage in adjacent rows showing benefit of top-dressing with nitrogen.

Note the Cape weed right up to the crotch of the tree. It was of a good dark-green colour.

Super. or sulphate of ammonia has in general given most noticeable results to date. The final choice between these two fertilizers should be made after trial. On the whole, super. tends to be more generally effective for this purpose in the northern orchards, while a nitrogenous manure, such as sulphate of ammonia, is more usually effective in the south of the State. These results, however, depend largely on the type of herbage. Clovers seem to prefer super., while Capeweed responds more usually to nitrogen. The results from grasses are variable.

Manurial Requirements of the Tree.

The grower too often bases his manurial practice on his estimate of the loss to the trees and the soil occasioned by the taking off of succeeding crops. This is quite an unreliable method, for it can be taken that, as a general rule, comparatively little of the soil nutrients go into the actual crop, most being required to develop the framework and other growth features of the tree.

"Which fertilizer makes fruit?" is a question sometimes asked by growers. In answer it may be said that no fertilizer makes fruit as distinct from growth, but that any one or all of the fertilizers may affect the growth characters of a tree, and thus indirectly affect its yield.

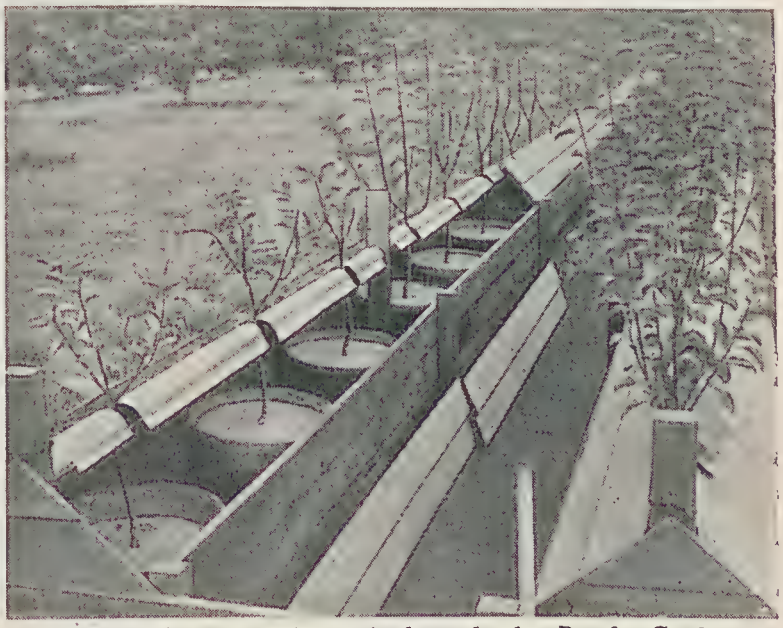
There are very good grounds for believing that if tree growth be satisfactory, yield automatically will be so; from which it would follow logically that growers should decide their manurial practice more upon the appearance of their trees, and less upon the crops they have borne or are expected to bear.

Where fertilizers further a more healthy growth and appearance in trees previously unsatisfactory in health, they usually improve the yielding capacity of the tree also. *When tree health suffers, the grower must apply fertilizers to conserve his main asset.*

It is not intended to convey the impression that *increased growth* in all cases will be accompanied by *increased yield.* This would only be so in trees previously showing too restricted growth. The most fruitful condition in fruit trees is one of *medium growth,* with good healthy appearance of leaves and wood.

The subject may be viewed from a slightly different angle by asking and answering a further question: "In the event of a shortage of any element is the growth and foliage first affected, or does the yield decline while the tree to all other appearances remains normal"? The available evidence indicates that the first signs of a mineral deficiency are to be seen in the foliage. Experiments on apples at Upper Beaconsfield, on a poor soil, showed that unmanured or improperly manured trees do not make anything like the amount of growth made by those on adjacent manured plots, nor is the appearance of the foliage satisfactory; but during the trials the yields of the unmanured trees did not decline seriously by comparison, although it was obvious that if faulty growth conditions had been allowed to persist they must soon have resulted in low yields from the actual dying back of the trees from the tips.

In England the disease known as Leaf Scorch, which has been associated with potash deficiency, has been extensively studied. It has been found that, in the case of plums, the deficiency is marked in leaves and stems, which, when analysed, are seen to contain very much less potash than normal specimens; but this deficiency is not nearly so marked



Portion of the pot experiments in the orchard at Burnley Gardens.

in the pulp of the fruit, while in the fruit kernel of the affected tree the potash content is practically normal. This is a further indication that when the tree is starved of any particular element—in this case, potash—the leaves and shoots suffer long before the vital organs—the fruit, and seed. This is in

Potash deficient leaves (front and back) showing the characteristic marginal scorching which usually develops in late Summer.

accord with the effects accompanying starvation of the animal body, where the vital organs remain perfectly sound until a very late stage in the process of starvation.

This leads again to the very important conclusion previously mentioned that *if the tree is growing in a healthy fashion it is not likely that the yield of that tree will be increased materially by applications of fertilizers.*

On the other hand, it points to the necessity for maintaining healthy growth, for only when that is obtained will the tree continue over a period of years to increase its bearing surface, and thus its ability to carry larger and larger crops.

There are orchards on soil quite rich enough to supply the whole mineral needs of the trees, and on such soils growth will be healthy without manure, while the benefit to be secured from fertilizers would be negligible. There are, nevertheless, many soils which will not give the growth desired, and on these the fertilizers suitable to them will prove of inestimable benefit.

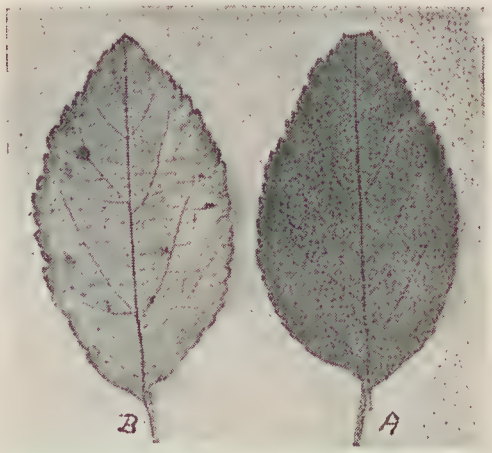
There is room for a great deal of experiment, not only in the trying out of fertilizers on orchards previously somewhat neglected, but also on heavily-manured orchards on rich soil, where it would be of great interest to leave some trees entirely unmanured for comparison.

Symptoms of Deficiency.

In the case of apples the experiments conducted in this and other countries enable the appearance of the trees to be used as a fairly accurate guide to the exact fertilizer to be added in each case of faulty growth. Lack of *nitrogen* results in very restricted growth, reddish bark, small yellow-green leaves, which develop bright yellow tints before falling and fall, particularly at the base of the tree, very early.

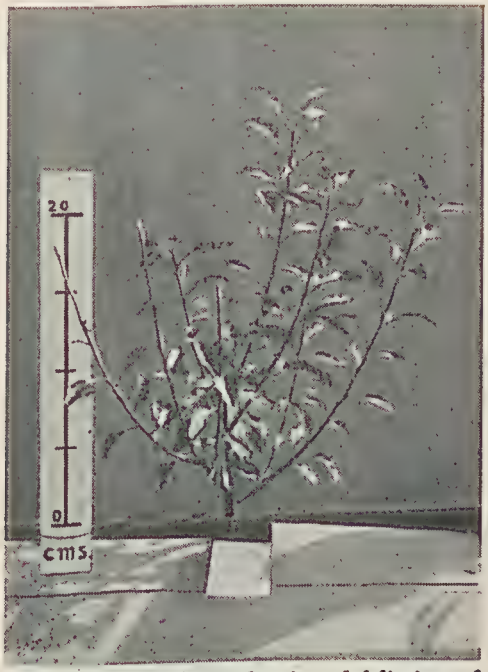
Lack of *phosphoric acid* under experimental conditions, although it has never been noted in the field so clearly as in the case of nitrogen, results in poor growth, small and very narrow dark-green leaves, with a tendency to develop purple coloured margins. These leaves usually develop very bright tints before falling. They tend to defoliate very early, and bud burst in the spring is usually very delayed. Dying of buds is very prevalent.

Lack of *potash* does not restrict growth apparently as much as either of the former two, but renders the leaves susceptible to severe



Nitrogen deficient leaf of yellowish green throughout growing season (right) and bright yellow at defoliation (left).

scorching around the margins and the development of a flat green colour throughout. It also causes early defoliation from the tips of the shoots on which marginal leaf scorch has been pronounced. This deficiency is apparently very widespread in England, and occurs occasionally in the field in Australia.



Potash deficient tree showing defoliation of tips of affected shoots.

Although it is already known that other fruit trees behave in a manner similar to apples, their reactions are not so well known, owing to less research having been performed in their cases.

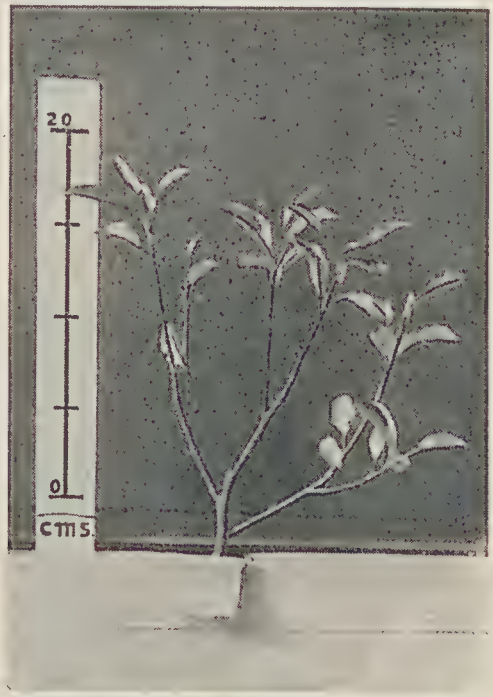
Importance of Balance.

One of the most important developments of recent years has been the conception of balance in fertilizers, and it appears probable that the balance existing between the various nutrients present in the soil is more important by far than the acutal amounts. As an instance, let us consider leaf scorch of apple leaves, to which we have referred as a symptom of potash deficiency. Strictly speaking, it appears to be a symptom of bad balance between nitrogen and potash, and it may be corrected by either increasing the potash or by lowering the nitrogen. In certain cases in England the trouble has been corrected more rapidly and more efficiently by simply allowing the grass to grow beneath the trees, and so lowering soil nitrogen, than by applying to the soil quite heavy applications of sulphate of potash. Several other cases of balance have also been studied, and sufficient is known to support the view previously expressed that balance is a most important consideration.

In practice this is reflected by the great increase in the use of complete fertilizers, and the compounding of these mixed fertilizers along lines which make them much more truly balanced than the type of complete fertilizer to which horticulturists were accustomed, up to, say, ten years ago, or even less.

General Recommendations.

There is still room for research and improvement of these mixed fertilizers, although the variation in soil conditions from orchard to orchard, and district to district, will make necessary for a long time to come a fair degree of approximation. In Victoria the use of complete fertilizers is on the whole recommended, except in cases where a definite deficiency is established by careful observation. For instance, where tree growth is very poor indeed and leaves are small and yellowish, a nitrogenous fertilizer such as sulphate of ammonia or nitrate of soda may be used alone for a time until the trees improve. Again, if leaf scorch of apples were to occur seriously the use of potash alone would be desirable until such time as this symptom of potash deficiency had disappeared.



Nitrogen deficient tree showing very reduced growth and defoliation commencing at base of the tree.

Where soil humus is maintained in the manner described previously, the most satisfactory *type of fertilizer* to use is the readily soluble quickly-acting form applied either in autumn for the benefit of the greenstuff, or in spring, two or three weeks before bud burst, for the more immediate benefit of the tree.

Nitrogen, in the form of sulphate of ammonia; phosphoric acid, in the form of superphosphate; and potash, in either the sulphate or muriate (except in the saline areas where the muriate should not be used) should, singly or in combination, supply the needs of most orchards. All of these, of course, will not be needed in every case.

The quantities of fertilizer to be applied will vary with tree size, and the following suggestions refer to medium-sized trees:—

For autumn broadcasting or drilling in with the green crop, superphosphate or sulphate of ammonia should be used at the rate of 1 to 2 cwt. per acre, in accordance with the conditions previously discussed.

For spring application to deciduous trees, 3 lb. of 2:2:1 mixed manure, which contains 2 parts of superphosphate, 2 parts of sulphate of ammonia, and 1 part of sulphate of potash is to be recommended, except when growth is very restricted and leaves are yellowish. In such cases 3 lb. of sulphate of ammonia is to be preferred for a year or so, until growth improves.

Citrus trees, on general results so far obtained, would benefit from 3 lb. of sulphate of ammonia just before the spring growth period, and again just before the main autumn growth.

Methods of Application.

Having decided on sound lines that one or more artificial fertilizers are required, the grower is still faced with problems of great magnitude, for it does not necessarily follow that by applying them to the soil they are actually caused to be absorbed by the tree's roots. In fact it is certain that very little of the fertilizer applied is so absorbed, even under the most favorable conditions. There are several reasons for this. Firstly, the root system of the average orchard tree is situated in a zone some distance from the surface, and the fertilizer must penetrate to this zone through a blanket of surface soil. During its progress nitrogen tends to be rapidly absorbed by the roots of the surface-growing plants, but is otherwise able to move downward without much obstruction.

Phosphoric acid and potash, however, move downward only with great difficulty. Chemical reactions rapidly convert the soluble phosphoric acid into an insoluble form, and the potash, particularly in those soils in which potash is necessary, is absorbed by the clay particles very rapidly indeed, and held there in a form no more available to the tree than much of the potash previously in the soil. It is important therefore that, in applying fertilizers, they should be placed as deeply as possible, either by being broadcast and then ploughed under immediately, or by being placed in deep furrows.

A form of marginal leaf scorching in apples sometimes due to lack of potash.

In short, every means at the orchardist's disposal should be used to place the fertilizer in the actual effective root zone. From this point of view irrigation water, or liberal falls of rain, are of the greatest importance, and should be fully exploited to wash down soluble fertilizers.

Good General Orchard Management.

In conclusion, a warning should be given that the problems of soil fertility do not reside completely or even mainly in the use of artificial fertilizers. Too often the grower is apt to regard artificial fertilizers as a panacea for all the ills to which orchard trees are heir. But the truth is that at best they are but a subsidiary measure to all those items of good orchard practice and intelligent soil management, which keep the soil in a physical state to afford the trees' root systems a congenial and comfortable home.

Summary.

1. The lack of a definite manurial policy on the part of many growers is a cause of monetary loss to the industry.

[*Continued on page* 150.

SUBTERRANEAN clover was introduced by chance into Victoria some 40 or 50 years ago from Europe, its native home, where it is looked upon as an unimportant species. During the last twenty years it has become established as one of the most valuable plants available for pasture improvement in Victoria and is now extensively sown down.

Though only one strain (the "Mt. Barker" strain) had been developed commercially, it was considered probable by the Department of Agriculture several years ago that, like every plant species, subterranean clover embraced a number of strains which differed from each other in many respects and varied in their adaptability to different rainfall and soil conditions.

The Department therefore arranged for seed to be collected from as many sources as possible, both at home and abroad, and in particular from fields in Australia where the seed had not been sown down by the hand of man, but had gained admittance in some accidental manner and had flourished. This seed was sown in observation plots at Burnley and the resultant plants were critically examined for differences. The work was very successful. Variants were found to exist in considerable number and to differ from each other in many characters of agricultural importance. It was found also that each strain bred very true to type, its flowers being normally self-fertile and resulting in the strain exhibiting great stability and uniformity in succeeding generations.

The Strains.

The various strains of subterranean clover have been classified into early, midseason, and late, according to the time at which they commence to flower in the spring. Though the classes merge into one another the classification is useful as it is found to group the strains largely also according to the habits of growth which they display in the field.

Early strains have long runners with one or two laterals only. The leaves are sparse and are placed well apart along the runners. The plants commence rapid growth early in the spring, and flower and set seed early. (Self-established plots have germinated at Burnley in December and January, and have actually flowered during late April, before the advent of winter). Their characters make them suitable for areas of light rainfall and short seasons. A West Australian strain known as Dwalganup is being sold commercially for such areas.

Midseason strains, as a rule, lie midway between the early and the late strains in their leafiness and the length of their runners, which usually have five or six lateral branches. The subterranean clover of commerce consists almost solely of a midseason strain known as "Mt. Barker," after the South Australian district, where it is largely grown for seed. This strain is generally sown down in districts having an average annual rainfall of 21 inches or more.

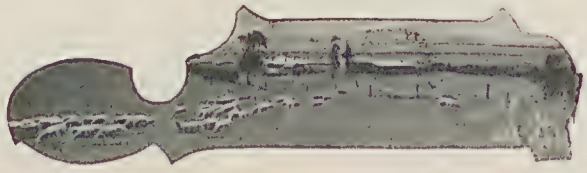
Late strains are in marked contrast to both the above. They are very leafy, with relatively short runners which may have ten or more lateral branches. They commence rapid growth later in the spring and sustain it longer into the season; they form a a very dense, close, leafy pasture and remain green longer under favorable conditions. Seed of one of these late strains, to be known as "Tallarook," after the district in which it was found, is being harvested this summer for the first time, and is going on the market in commercial quantities.

A dense growth of Tallarook subterranean clover.

Tallarook subterranean is late maturing and very leafy. The runners grow from 16 to 18 inches long and branch, up to the eleventh or twelfth leaf, into short, leafy, lateral branches, which may branch again, thus forming a very dense plant. The proportion of leaf in the total yield of a single plant at the hay stage may be as high as 76 per cent.* The florets are distinct in having a pale green calyx tube, not banded with a bright red band as in the Mt. Barker strain. The leaves are distinct in the rosette stage, having a large white crescent across the middle, and being shaded black in the area below the crescent. When rapid growth commences in the spring, however, the leaves are green only, with a faint white crescent. Under normal conditions flowering commences about the middle of October, and the plants commence to die off about the middle of December. It is therefore a fortnight later than the Mt. Barker strain.

The origin of the Tallarook strain is not known. It was discovered in 1928 on a property known as Riverlea, at Tallarook, and has since been found on an adjacent property known as Mundara. Both properties are owned by Messrs. A. C. Head & Son, who are harvesting seed this summer for the first time. The average rainfall at Tallarook is 23 inches per annum. The clover is growing mainly on the lower flats and upper flats along the Goulburn River, but is not confined to these areas, and has found its way up the hillsides, where it made marked progress last season under top-dressing. The pastures at Mundara and Riverlea, containing this local strain, have been under observation for several years and have been consistently very good and attractive. The clover is regarded as worth trial by farmers, especially in areas of favorable rainfall.

Like other strains, Tallarook has bred true to type over a period of several years in the Burnley Pasture Plant Research Field. The flowers are normally self-fertilized and each generation of plants has great stability of type, although growing side by side with other strains.



* *Tasmanian Journal of Agriculture*, February, 1935.

Crop and Fallow Competitions

Results at Echuca

Report of the Judge, W. B. Miller, M.Agr.Sc., Senior Inspector of Agriculture

THE organizers of the inaugural crop and fallow competition, initiated in 1935 by the Echuca Agricultural and Pastoral Society, evidently realize the important part such competitions have played in the improvement of wheat-growing methods. These competitions have been conducted from time to time in practically all the wheat-growing districts of Victoria, and, although enthusiasm waned to some extent during the years of abnormally low prices, it is gratifying to note that in the past season 22 competitions, comprising approximately 590 entries, were held throughout the Mallee, Wimmera, Northern, and Goulburn Valley districts.

Much could be written of the beneficial influence these friendly and educational contests have had on the lifting of the wheat yield per acre during the past seventeen years. They have drawn attention to the farming methods proved practical and remunerative by the most progressive farmers in various districts, and have led to the adoption of such methods over wider areas. They have made it possible for growers and officers of the Department of Agriculture to discuss, with benefit to both, questions of mutual interest on the fallow or the crop. They have accelerated the distribution of higher yielding varieties and strains of wheat produced on the Experimental Farms, and they have assisted in the dissemination of the ever-increasing knowledge of disease and weed control. Further, they have been a means of collecting, over a period of years, a mass of reliable data which could not have been obtained otherwise. The Department of Agriculture encourages these competitions, as their value to both the districts concerned and the State as a whole is fully realized, and departmental officers welcome the opportunities for additional personal contacts with the farmers.

The competitors themselves usually are a group of enthusiastic rivals who enter the competitions in a sporting spirit, coupled with a general desire for more detailed knowledge of their vocation. Some entrants have never obtained the highest awards, although they have been competing for many years, and it is the continuous support of such men which makes the difference between a successful competition and a mere prize-awarding formality.

Methods of Judging.

Many people do not understand the actual methods of judging fallows and crops. Although the grower with the most fertile land, sown well under good conditions, has a big advantage, he is not necessarily the winner. Of the 200 points awarded, 100 are given for the fallow, in the making of which fertility is of small importance compared with the skill of the manager and cultivator.

The economic preparation and maintenance of good fallows have such a great influence on subsequent yields that the fallow section is regarded as a most important, though not a very spectacular, feature of the competition. Some may consider that it is the crop which provides the final test of skill, but this is not always so, as the natural fertility, previous history of the land, benefits from scattered rains, unfortunate dry periods causing poor germination, and many other factors may all influence the crop. It is generally found that growers, even those working similar soil, use different methods in preparing their fallows, and a comparison of the results obtained is made and commented on by the judge. It is not always the most frequently worked fallow which produces the best result, and the judge is asked to compare the fallows from the point of view of moisture conserved, freedom from apparent weeds, the compactness of the seed bed, and the depth and texture of the mulch in so far as it is suitable for that type of soil. The actual cultivation given has no bearing on the awards, but is regarded as important information. The competition area usually is 50 or 75 acres, which has been found the most useful area for the purpose.

The crops grown on the fallows are judged with their apparent yield as the principal feature, but no crop in which weeds are very

prevalent, or where preventable diseases are present to any great extent, can be claimed as a good exhibit or as good farming. The most creditable crop is one which makes best use of the land available, and, therefore, points are provided under the headings of absence of weeds and disease. Experience has shown that winning crops in a competition are expected to produce seed suitable for distribution throughout the district, and therefore purity and trueness to type receive consideration. A well-drilled, even crop, of reasonable height and not lodged is aimed at by every practical farmer, and these characteristics are judged under the heading of evenness.

The above summary should serve to indicate to intending competitors and other supporters of competitions the chief reasons why the contests are to be encouraged and the manner in which they are conducted.

The Echuca Competition.

Eleven entries were inspected in the districts of Womboota, Thyra Road, Moira, Bamawn Extension, Wharparilla, Willowgrove, and Turrumbarry. The general impression given was that the district had experienced the best season since 1924, and the higher prices for wheat, wool, and fat lambs had given new heart to everyone. The crops shown in the competition were expected to give an average yield of eight bags to the acre. The season was characterized by a fairly favorable autumn, sufficient moisture in the winter, and exceptionally heavy and beneficial spring rains. Even then the season was marred by a dry period in May, resulting in some instances in a patchy germination and by a heavy wind storm in November, which caused some grain to shed. Harvesting commenced late in November, the grain being of excellent quality and the yields up to expectations.

Entries were submitted by growers farming from 600 to 1,600 acres on both originally timbered land and plain country, some being located on comparatively fresh ground while others were in paddocks which had been consistently cropped for many years. With such diversified soil conditions to deal with the details of cultivation methods might be expected to show some variation, but the principles of early fallowing, weed control, and early sowing, if possible, apply to all soils.

The greatest field difficulties appear to be the control of wild oats on the older land, and, in some years, the risk of a poor germination on the heavy land due to either dryness or waterlogging. It is suggested that light summer fallowing with a suitable disc implement would encourage wild oats to germinate, and subsequent heavy stocking with sheep before the land is ploughed in the late winter should assist in their eradication from the paddocks, which, however, must be fairly constantly cropped. As late sowing is too risky, this method, combined possibly with thorough burning of the stubbles if the sheep feed can be spared, appears to be the only control measure to apply where wild oats are causing serious losses in the wheat yield.

Varieties and Manure.

Ranee is the most popular variety in the district, but increasing areas of Ghurka have been sown with success in the last two seasons. These two varieties are recommended as the most suitable wheats for the district, with the proviso that the improved strain of Ranee, known as Ranee 4H, should replace the older Ranee. It is very difficult to distinguish Ranee 4H from Ranee by its appearance, but the former has been proved more prolific. Ranee 4H matures earlier than Ghurka, and is taller, but it does not possess the same resistance to the diseases, flag smut and rust. Ranee 4H does not differ from Ranee in its slight weakness in the straw and its tendency to shed. These weaknesses, however, are not found in Ghurka.

Growers would be wise to obtain, at regular intervals, some fresh seed from the Experiment Farms or Agricultural Colleges, particularly in the case of Ghurka, as the district seed of this variety did not appear to be very pure.

It was surprising to find that manurial dressings as low as 35 lb. per acre were regarded by some as being the optimum amount to use. It would require accurate experimental plots to determine the quantities which give the greatest net returns, but there are very few, if any, Victorian districts with a 17-inch rainfall as experienced at Echuca, where dressings of at least 60 lb. per acre are not payable. It is claimed that heavy dressings may "burn off" the crop, but the general experience over many years indicates that this is not the case.

The response from extra superphosphate may be too small to be readily discernible from the appearance of the crop. Even if the increase in yield amounted to 1 bushel per acre only—and no farmer would undertake to estimate the yield of a crop to the nearest bushel—this extra bushel of wheat (valued even at 2s. 6d.)

ECHUCA CROP AND FALLOW COMPETITION, 1935.

Best 50 acres of Fallow and the Crop grown thereon.

Competitor.	Variety.	Apparent Yield.	Purity and Type.	Absence of—		Evenness.	Crop Total.	Fallow Total.	Grand Total.
				Weeds.	Disease.				
Maximum Points	.. ..	**35.**	**20.**	**15.**	**15.**	**15.**	**100.**	**100.**	**200.**
A. D. Leitch	Ghurka	26	19	14	15	14	88	90	178
A. Spiers	Ghurka and Free Gallipoli	26	19	13	14	14	86	92	178
J. Scurrah	Ranee	29	20	14½	15	15	93½	83	176½
T. R. Scurrah, No. 2 ..	Ranee	27	20	13	15	13	88	88	176
W. G. Anderson, No. 2	Ranee 4H	28	19	14	15	14	90	84	174
W. G. Anderson, No. 1	Ghurka	27	18	14	14	13	86	86	172
T. R. Scurrah, No. 1 ..	Ranee and Ranee 4H ..	25	20	12	15	13	85	87	172
H. B. Berryman, No. 1	Ghurka	26	18	15	15	14	88	83	171
H. B. Berryman, No. 2	Ranee	24	19	15	15	13	86	84	170
J. A. Kirchofer, No. 1..	Ranee 4H	21	19	12	15	14	81	85	166
J. A. Kirchofer, No. 2..	Waratah	18	19	11	15	13	76	83	159

would more than pay for an additional 60 lb. of superphosphate.

Wheat-growers in the Echuca district therefore would be well advised to increase their manurial applications, and unless definite evidence is available to the contrary, they should apply at least 60 lb. per acre, while dressings even up to 1 cwt. per acre would probably be payable at present-day prices.

The points awarded are set out in the accompanying table. Mr. A. D. Leitch, of Thyra-road, and Mr. A. Spiers were equal for the highest aggregate points for fallow and crop. The cup, however, was awarded to Mr. Leitch, as this competitor obtained higher points in the crop section.

Mr. Leitch's crop of Ghurka was sown on land which was originally timbered and which had been under constant cultivation for the past ten years. The wheat was of good height, well headed and thick, except for a portion in the centre of the paddock where germination had been patchy. There were a few wild oats present, but practically no disease. The type of Ghurka was good, though not absolutely pure, and the grain had filled well for this variety. Ghurka crops usually consist of large numbers of medium-sized ears, containing average-sized grain, in contrast to, say, Free Gallipoli or Nabawa, crops of which are comprised of relatively fewer but larger heads with bigger grain. It is this characteristic of Ghurka, with its smaller heads and short straw, which often causes under-estimation of its yield.

The fallow on which Mr. Leitch's crop was grown obtained the second award in the fallow competition judged in March. The land was ploughed 3 inches deep in August, harrowed in September and October, and disced in February to kill paddy melons. In preparation for sowing, the paddock was spring-toothed in March and April, and sown with the drill about the end of the month, using 60 lb. of dry-pickled seed and 75 lb. of super. per acre. Harrows followed the drill, and a good germination was obtained over most of the area. It is considered that this crop would have been more even if the heavy summer discing had been avoided by the prompt use of sheep when the paddy melons germinated, so controlling the weeds without disturbing the seed bed.

There was little to choose between this crop and the entry of Ghurka and Free Gallipoli shown by Mr. A. Spiers, of Bamawn Extension. They were considered to be equal in apparent yield, type, and evenness, but the latter was not quite so clean or free from flag-smut, particularly in the Free Gallipoli. Mr. Spiers's crop was also grown on old land which had not been spelled for more than one season for many years, and so required careful treatment to eradicate weeds. The fallows had been thoroughly worked, and obtained first award when judged in March. The land originally was plain country, broken with the sundercut in June to a depth of 4 inches and harrowed. The weeds were destroyed with a sundercut early in November, and sheep were used to eat out any remaining growth. After the January rains, a stroke of the combine with wide points was given, leaving a good seed bed. The plain roller and combine were used in April, and the

[*Continued on page* 143.

Dimboola Crop and Fallow Competition 1935

Report of the Judge—A. J. Vasey, B.Agr.Sc., Cereal Research Officer, Department of Agriculture

DESPITE somewhat irregular seasonal conditions the standard of the crops exhibited in the Dimboola competition this year was very satisfactory and a distinct tribute to the efficiency of district farming practices. The margin between success and failure in such a season is very narrow, and on the drive round the district several crops were seen which did not approach accepted Wimmera standards. In most cases the depressing factor on yield had been weed growth, chiefly mustard. This was the result of rather rougher fallowing methods than usual, and the trouble was also accentuated by the late break in the weather in the autumn. Such crops which had suffered from weed competition during the growing period did not finish nearly so well on the somewhat meagre rainfall of late spring. One can of course appreciate the attitude of those wheat growers, now running more sheep than formerly, who have been utilizing the weed growth on the fallows as a grazing proposition. It should be pointed out, however, that where this results in a reduction of more than three bags per acre in the following crop, the total farm income benefits very little.

That, in spite of the late autumn, clean crops were grown shows that weeds can be controlled. One competitor described his method as that of concentrating on first obtaining a good germination of mustard before thinking about sowing his wheat crop. The frequent harrowings which this practice necessitates are possible only on this very favoured Wimmera black soil, while they would be distinctly dangerous on the lighter soils of the Mallee, or the heavier red soils of the Wimmera and Northern country. Even in the Wimmera the harrows are an implement which must be used with the utmost discretion for summer workings of the fallow.

Only the three varieties, Ghurka, Free Gallipoli, and Ranee were shown in the competition crops this year, and there is a place for each of these on the varying soils of the district. Ghurka is a very suitable variety for sowing on clean black ground, while Free Gallipoli is likely to be more reliable on the mixed country. For the red soils which dry out quickly in the spring Ranee 4H is to be preferred. Neither of these two last named varieties has the flag smut resistance of Ghurka, and where this disease is a serious trouble Ghurka should be used almost irrespective of soil type. On account of its erect, drought-resistant type of growth from quite early in the season Ghurka is a poor competitor with weeds, hence the necessity for clean fallow for this variety.

While considering the question of varieties mention should be made of one of the newer varieties, recently introduced into the district. Several crops of Dundee were seen, and these promised to yield within a bag to the acre of adjacent crops of Free Gallipoli, an estimate which is borne out by the results of this year's tests at Salisbury. While a premium of 6d. per bushel is available for this variety it should be a very profitable one to district growers.

Several fine exhibits as far as trueness to type was concerned, were marred by odd heads of barley. No crop was inspected in which a sufficient area for seed could not have been cleaned up by an hour's energetic hand picking.

As will be seen from the points awarded under the heading "Absence of Disease," the crops generally were very healthy, the absence of takeall patches and dead heads being very gratifying. In no case was a serious infection of either flag smut or loose smut observed. The presence of ball smut in one entry emphasizes that the necessity still exists for careful attention to pickling methods.

The detailed awards are set out in the table on the next page.

Only two crops were submitted for judging in the section for Mallee land. Both were of Ghurka and promised good yields. Mr. Glatz's entry was the heavier crop though not so clean or even as that of Mr. Harders. A better performance in the fallow section in 1934 enabled Mr. Harders to win the combined event.

The estimated average yield of the nine crops inspected in the section for land other than Mallee was 28 bushels per acre. The winning crop in this section that of Mr. W. J. Westendorf, was a

CROP COMPETITION FOR 50 ACRES OF FALLOW, 1934, AND THE CROP GROWN THEREON, 1935.

Competitor.	Variety.	Yield.	Purity and Type.	Absence of—		Evenness.	Crop Total.	Fallow 1934.	Fallow and Crop.
				Weeds.	Disease.				
Maximum Points	.. ..	**35**	**20**	**15**	**15**	**15**	**100**	**100**	**200**
	SECTION 1.—MALLEE LAND.								
V. H. Harders ..	Ghurka	32	17	13	14	14	90	95	185
G. J. Glatz	Ghurka	34	19	12	14	13	92	90	182
	SECTION 2.—LAND OTHER THAN MALLEE.								
W. J. Westendorf ..	Ghurka	35	18	14	14	13	94	96	190
H. Budde, No. 1 ..	Ghurka	30	19	13	14	14	90	94	184
A. H. Walsgott ..	Ghurka	32	18	11	14	14	89	93	182
H. Budde, No. 2 ..	Free Gallipoli	28	17	14	14	14	87	93	180
N. L. Harders, No. 2 ..	Free Gallipoli	28	19	12	13	14	86	93	179
T. G. Clements, No. 2..	Free Gallipoli and Ghurka	26	18	13	13	14	84	94	178
T. G. Clements, No. 1..	Free Gallipoli and Ghurka	25	18	14	13	12	82	94	176
N. L. Harders, No. 1 ..	Ranee	24	19	13	13	14	83	89	172
T. E. Moller	Free Gallipoli and Ghurka	25	15	14	10	13	77	95	172

very fine exhibit. Ghurka was the variety, and despite the dry season the crop was finishing slowly and evenly and promised a high yield. On scarified summer fallow the crop was sown in the third week of June at the rate of 80 lb. of seed and 80 lb. of superphosphate per acre, and then harrowed twice. The effectiveness of the extra working in weed control which the late sowing permitted was reflected in the cleanness of the crop.

Mr. H. Budde's entry was also of Ghurka, and while not up to the winning crop in yield or freedom from weeds, wild oats being numerous, was of such excellent type Ghurka that it deserves special mention. The same remark would have been applicable to his other entry of Free Gallipoli, but for a stray head of barley. Workings giving

SECTION 3.—MALLEE LAND—50 ACRES OF FALLOW, 1935, AND THE CROP GROWN THEREON, 1936.

Fallow Awards.

Competitor.	Moisture.	Mulch.	Absence of Weeds.	Cultivation and Seed Bed.	Total.
Maximum Points	**25**	**25**	**25**	**25**	**100**
H. Jensz, No. 1 ..	23	24	25	23	95
H. Jensz, No. 2 ..	23	23	24	24	94
V. H. Harders, No. 4 ..	23	22	22	23	90
V. H. Harders, No. 1	22	22	22	23	89
V. H. Harders, No. 2					
V. H. Harders, No. 3 ..					

SECTION 4.—LAND OTHER THAN MALLEE—50 ACRES OF FALLOW, 1935, AND THE CROP GROWN THEREON, 1936.

Fallow Awards.

Competitor.	Moisture.	Mulch.	Absence of Weeds.	Cultivation and Seed Bed.	Total.
Maximum Points	**25**	**25**	**25**	**25**	**100**
W. J. Westendorf	24	24	25	23	96
H. Budde, No. 1	23	24	25	23	95
H. Budde, No. 2	23	24	25	22	94
E. Moller, No. 2	23	24	24	23	94
E. Moller, No. 1	22	23	24	22	91
T. Elsom	22	23	24	22	91
A. C. Jorgensen, No. 4 ..	23	24	22	22	91
A. C. Jorgensen, No. 1 ..	23	23	22	22	90
A. C. Jorgensen, No. 2 ..	23	23	22	22	90
A. C. Jorgensen, No. 3 ..	23	23	22	22	90
N. L. Harders, No. 2 ..	22	23	22	22	89
E. Moller, No. 3	22	22	22	22	88
N. L. Harders, No. 1 ..	22	22	22	22	88

in 1935 had been two autumn scarifyings then sown with the combine in June with seed at 75 lb. and superphosphate 63 lb. per acre.

In the fallow section of Mallee land, six entries were submitted. Those of Mr. Jensz could not be separated and were placed first. Workings given had been as follow:—Scarified from oaten stubble in early May, cross-scarified the end of July then harrowed. This was followed by the combine with harrows attached in September and October, with two further harrowings in

[*Continued on page* 143.

The Poultry Industry

Selecting Breeding Stock

By W. C. Rugg, Chief Poultry Expert.

A desirable type of female.

THE selection of breeding stock for the coming season and their mating form one of the most interesting undertakings of the year. The success of the whole season depends on the judgment displayed in placing the right birds together.

Unfortunately high egg producers know no set type by which we can tell them with certainty. It is surprising the number of hens possessing many of the outward characteristics generally considered necessary to a good layer which fail to lay even a fair number of eggs.

This may sometimes be accounted for by the fact that perhaps the bird's digestive organs are not quite right, or she may not have been fed the right kind of food to enable her to lay a lot of eggs. But there is another reason. It is essential for the breeder to bear in mind that the various characteristics of the chicken may be inherited separately.

It is possible for a pullet to inherit many of the characteristics of a good layer and yet not inherit the factor for high egg production. It is plain therefore that the first essential is the selection of birds that have the characters wanted. The next thing is to test their power to transmit those characters. Certain birds are excellent in breeding one character, but fail in others. Some hens that transmit several desirable characteristics may also transmit one or more very undesirable ones.

Some birds are good breeders, others though closely related are of very little account. So the most progressive method of breeding is to know the parentage of each chicken. This will enable one, by testing the progeny of his matings, to find out the good qualities that have been transmitted. This will indicate also the steps that should be taken to correct any undesirable qualities that may appear.

There are too many men who value trap nesting or single penning, simply as a means of telling how many eggs hens lay in a given time. With most, the fact that a hen lays a large number of eggs is sufficient to ensure her a place in the breeding pen, irrespective of her size and type or the size of the eggs she lays, whereas the greatest value in single testing lies in the fact that it enables us to determine family traits in our birds. These are really the breeder's safest guide. For instance, if a pullet lays 300 eggs in a year but has several sisters that are poor layers she probably has no value as a breeder. If, on the other hand, we have four or five sisters that lay an average of 250 or over, the indications are that high egg production is a family trait and one likely to be transmitted. Any of these sisters probably is of greater value as a breeder than the hen that lays 300 eggs, but is the only high-producing member of her family.

It is an accepted fact that high egg production is transmitted from the mother through her son to his daughters.

No poultry farmer should be in a hurry to discard a good cock bird. Many a third, and even a fourth, season male will sire strong vigorous progeny if he has been well taken care of. Once a male proves his ability to sire good layers, he is almost invaluable. It must always be remembered that the first selection of breeding stock should be on the basis of constitutional vigor and vitality. A pedigree male is the only safe one to use. It is necessary to know not only how many eggs his mother laid, but also what sized eggs they were.

Further, no matter how may eggs his mother laid, unless he is a bird of strong vigorous constitution, it is very unlikely that he will transmit the good laying qualities of his mother to his daughter. A breeder should never lose sight of the fact that every desirable quality in a strain can be fixed only by repeated and continuous selection year after year.

An Australorp cock which, when six years old, sired the team which won at Burnley in 1934-35.

Echuca Crop Competition (*Continued from page 139.*)

seed was sown in mid-May after another working with the combine at the rate of 70 lb. of dry pickled seed and 1 cwt. of manure per acre.

The heaviest and best crop inspected was one of Ranee grown by Mr. J. Scurrah on light, red loamy, plain land. The paddock was sown to wheat on new land in 1923, and since cropped on fallow in alternate years. By careful farming, weeds had been kept out and cultivation methods were consequently simplified and cheapened. After ploughing in July to 3½ inches, the drag harrows were sufficient to keep the fallow in order until early March, after which two strokes with the scarifier were given before sowing at the end of April with 65 lb. per acre of both seed and manure. Despite the success of Mr. Scurrah's crop, his methods are hardly applicable to larger areas where cultivation in the spring, rather than harrowing at that period, is necessary to maintain a loose mulch and to control the weeds.

The remaining crops showed interesting features, but several of them had suffered from a patchy germination, due to the dry period in May and from competition with weeds. The average amount of seed used by the competitors was 65 lb. per acre, and of superphosphate 71 lb. per acre.

Dimboola Crop Competition (*Continued from page 141.*)

November and December. This intensive treatment would not have been advisable on the land of the other entrant in this section, Mr. V. H. Harders. All four of his entries had been worked similarly, No. 4 being of a soil type which showed to better advantage under the treatment given. It had been ploughed in early August, harrowed in the first week of September, and scarified at the end of September.

All the exhibits in Section 4 were on black land and it was difficult to separate the two leading entries. Both were very fine fallows though they had been prepared rather differently. Mr. W. Westendorf's methods were as follow:— Scarified 3½ inches in March and again in July, then harrowed in mid-August. The scarifier, with the harrows attached, was used in early September and in late October. A shear-harrowing was given in early October and again in mid-November.

Mr. H. Budde's No. 1 entry was ploughed dry from oaten stubble with a sundercut in March and left until July, when a scarifying was given in this month, also in August and September.

In conclusion it may be stressed that the best fallows were not necessarily those which had received the greatest number of workings, but rather those on which the spring scarifyings had been timed best in relation to prevailing weather conditions.

Cutting the Wings of Fowls

By H. F. Clinton, Assistant Poultry Expert.

Fig. 2.—The correct method of cutting the wing of a fowl.

THE domestic fowl, which has developed along the lines of a flying rather than a running bird, does not possess any notable capacity for flight. It can, however, pass over an ordinary fence without very much difficulty. Occasionally, therefore, it becomes necessary to cut the wings of fowls, and the following directions for performing this operation are set out in the hope that they will be helpful, not only to competitors in the Burnley Egg-laying Competition, but also to the suburban and small poultry-keepers who are anxious to keep their birds within well-defined spaces and at the same time take some pride in the appearance and health of their stock.

Although it is not the practice on commercial poultry farms to cut the wings of fowls, one of the requirements of the Burnley Competition is that all birds entered in the teams test (section A) must have their left wings cut before they are forwarded to the competition. This is necessary as, otherwise, fowls in this particular section could pass from one pen to another. The single test pens are enclosed completely, and birds entered in that class are not required to have their wings cut.

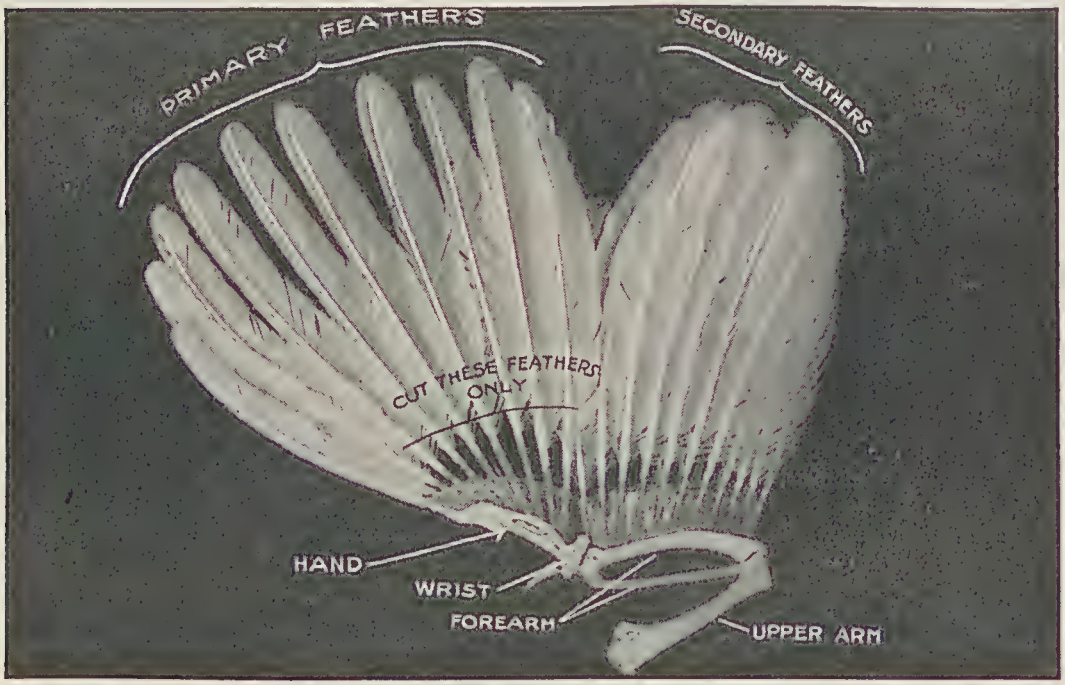


Fig. 1.—The Skeleton of a Fowl's Wing.

Despite the fact that this competition has been conducted for nearly 25 years, and that

Fig. 3.—A correctly cut wing will close neatly over the body and protect it.

usually there are about 70 teams, each of six birds, entered in Section A, it is apparent that many of the competitors do not yet understand clearly the correct method of cutting a bird's wing.

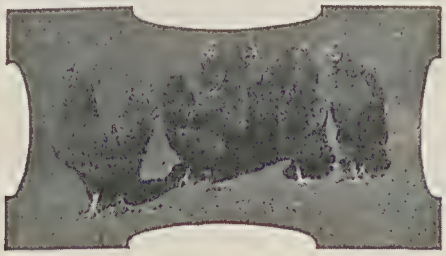
The Correct Method.

The fore-limb of a bird, which is modified for the purpose of flight, is commonly termed the wing. The skeleton which is illustrated in Figure 1 shows the various component parts clearly. The bone attached to the body is the upper arm, to which is attached the forearm, consisting of two bones. Connected with the two small bones of the wrist is the hand with its rudimentary fingers. The long quill feathers of the wing of an adult hen are divided into primaries and secondaries. The longest or primary feathers are attached to the hand or end segment of the wing, while the secondaries are joined to the forearm.

In cutting the wing of a fowl, it must be remembered that the primary feathers only, of the left wing, are dealt with. All of these except the first three are removed, giving the appearance illustrated in Figure 2. If this is done correctly, the wing will close nicely over the body (Figure 3). It is found frequently that poultry-keepers remove either the whole of the wing, i.e., the primaries and secondaries, or else the whole of the wing except the first three primary quills. Either practice is quite unnecessary to prevent flight, and in addition gives a most unsightly appearance to the bird (see Fig. 4). Further, a badly cut wing exposes the body to all weather conditions, which in turn may lead to the development of pneumonia or roup, usually with fatal results. This factor is of the utmost importance to entrants in the Burnley Competition, as at the time of starting the weather generally

Fig. 4.—A badly cut wing is unsightly and affords the bird little protection from adverse weather conditions.

is very showery and changeable and the birds, which are liable to become wet and chilled, require all the protection possible.



Common Parasites of Cattle (II.)

By T. L. Furness, B.V.Sc., Veterinary Officer.

The internal parasites, Twisted Wire Worm, Short Hair Worms, The Nodular Worm and Lungworm were discussed in the November, 1935, issue of this Journal.

Hydatid (Echinococcus) Disease.

THE hydatid is the cystic stage of a minute tapeworm (*Echinococcus granulosus*) occurring in the small intestine of dogs and wild carnivores. The cysts are commonly found in sheep, cattle, rabbits, pigs, and also in man. The relation between the tapeworm in the dog and hydatid disease is shown in the following life cycle.

Life Cycle.

The hydatid tapeworm is composed of four or five segments and, when mature, attains a length of not more than one-fifth of an inch. It inhabits the small intestine of carnivores, but the domestic dog is the most important primary host in relation to cattle and human infestation. As with all tapeworms each segment is equipped with both male and female reproductive organs. The final segment of the tapeworm becomes filled with fertilized eggs and when mature becomes detached and passes out with the faeces. The eggs are unable to develop any further unless they are eaten by a susceptible animal. Infestation of cattle and sheep usually occurs while they are grazing over pasture contaminated with infected canine faeces, or dust blown from the vicinity of kennels. Within the intestine small embryos hatch from the eggs, bore through the bowel wall into the blood stream and may be carried to various organs. These embryos grow slowly and gradually develop into highly specialized Echinococci or hydatid cysts.

The cysts vary in size from that of a marble to that of a small orange, and are most commonly found in the lungs and liver. They appear as white or yellowish-white bladder like structures embedded in the tissue of the organ, and are filled with a clear water like fluid. Within this medium may be found secondary cysts containing numerous sago-like tapeworm heads. Hydatid cysts may persist for a considerable period, although in cattle they tend to degenerate and become sterile, when the contents of the cysts are replaced with a cheese like substance in which lime salts frequently are deposited.

For completion of the life cycle the cysts must be ingested by a dog. This is commonly brought about by feeding dogs on raw offal containing cysts. These break down during digestion and the small tapeworm heads, which are armed with minute hooks, are freed. The young tapeworm then attaches itself to the mucous lining of the small intestine and grows into the adult worm.

Effects and Symptoms.

As the majority of the hydatid cysts in cattle are infertile, and undergo degeneration, symptoms directly attributable to this disease are rare. In cases of heavy infestation, however, the normal action of certain organs, particularly the lungs and liver, may be impaired by reason of the mechanical pressure induced.

Prevention.

Hydatid disease in man, sheep, and cattle may be prevented readily by the eradication of tapeworm infestation in dogs. This may be accomplished in two ways:—(1) By never feeding raw offal to dogs. Boiling infested offal for ten minutes will render all cysts sterile. Dogs should either be vigorously excluded from abattoirs or efficiently muzzled. (2) By the treatment of tapeworm infested dogs with certain drugs.

Liver Fluke.

Although liver fluke is widespread in Victoria amongst sheep it is only recently that it has been recognized as a serious disease affecting cattle. Sudden deaths may occur among cattle on known flukey country. This may be due to gross invasion of the liver by immature fluke, or to black disease, cases of which are becoming more frequently recorded, and stock owners confronted with this problem should lose no time in availing themselves of advice and assistance.

Liver fluke disease is due to the invasion of the liver tissue, especially the bile ducts, by a leaf-like parasite *Fasciola hepatica*, which undergoes a certain stage of its development within the body of a fresh water snail. From this secondary host the embryos pass to the pasture, and are ingested by grazing cattle.

Showing fluke infestation of the liver. Note the thickened bile ducts.

The complete life cycle, symptoms and methods of control are dealt with fully in a Departmental pamphlet which may be obtained free upon application.

Treatment.

The flukes are destroyed readily by dosing affected cattle with liquid extract of male fern. The dose is one drachm for each 60 lb. bodyweight, which should be carefully estimated. If the drug is of good quality, one dose only will be found necessary. The male fern is administered in two to four parts, by volume, of warm milk, raw linseed, or castor oil. Oils make a better emulsion and are preferred, although they add to the cost of treatment.

Starving overnight is useful, but not absolutely necessary, and animals should not be allowed access to water for at least two hours after dosing. Carbon tetrachloride which enjoys such a wide reputation for the treatment of fluke in sheep has unfortunately been found an unsafe drug for cattle.

Coccidiosis.

Coccidiosis is a disease mainly of young cattle, caused by a minute protozoan organism (*Eimeria ziirni*) and is concerned with the intestinal tract, particularly the large bowel. Coccidia when viewed under the microscope, in the state of development occurring in the faeces of affected animals, are found to be minute oval bodies possessing a thick double shell. These ovoid bodies are very resistant to adverse conditions, and represent the infective stage of the parasite.

Life Cycle.

Coccidiosis is spread by healthy animals taking in the coccidia during the ingestion of contaminated fodder and water. When they reach the intestinal tract they liberate other smaller bodies which invade and destroy the cells composing the mucous membrane of the intestinal wall. Rapid multiplication occurs, and in an acute infestation the destruction of the gut lining becomes extensive. After a while, a further change is undergone, and the small double shelled bodies are cast off from the bowel wall and appear in the faeces and further infect pasture and water supplies.

Effects and Symptoms.

Coccidiosis in cattle is of commoner occurrence in moist areas during the warmer months of spring, summer, and to a much lesser extent, early autumn. It sometimes develops as a result of lowered vitality and following upon sudden changes in the weather. The period that elapses between infection and the onset of symptoms varies from 6 to 21 days. It is essentially a disease of young animals. Immunity to infection increases with age and older animals are less prone to infection, but if affected suffer less severely.

The common symptom is a severe diarrhoea accompanied by the passage of blood and mucus. The attitude or posture adopted by the affected animal also is most characteristic. As a result of the marked straining due to colic, the back is arched and held in this position almost constantly. The head usually is held forward and the animal often grinds its teeth with pain. The animal may be feverish. Within one or two days the thin, watery faeces become charged with blood and mucus makes its appearance. The excreta has a foetid odour. The appetite may or may not be entirely lost during the height of the attack.

The disease most commonly terminates in death, but if the animal recovers, the period of

convalescence may be prolonged. The rapidity with which recovery takes place is inversely proportional to the severity and length of the acute phase. Death occurs as a result of secondary septic invasion, severe anaemia from haemorrhage and pneumonia. Prior to death convulsive fits are sometimes seen.

Treatment.

Various drugs have been used in the treatment of the disease but none so far appears to be entirely satisfactory. Cresol, naphthaline, and similar disinfectants are the most popular, and have been used in some cases with success, in others with poor results.

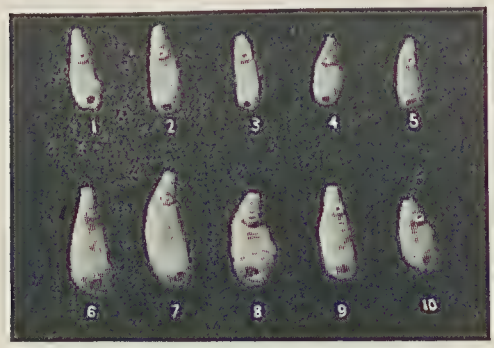
Calves should be segregated, and given whole milk until symptoms abate. In place of whole milk a ration of rich concentrates may be used. All faeces and contaminated bedding should be destroyed daily and calf pens kept clean. Ordinary disinfectants are of little use in yards, as the coccidia found in manure are extremely resistant. A hot solution of caustic soda is the cheapest and most effective agent for their destruction.

The most important feature in the prevention of the disease is the avoidance of overstocking and the rearing of calves in paddocks from which older cattle are excluded.

The Stomach Bot.

The stomach bot as it is popularly known in this State is not a "bot" but really belongs to the family of flukes (*Paramphistomum spp.*). It has a conical shaped body, pinkish-white or yellow in colour and is about half an inch in length. It is found attached by the thin end to the wall of the rumen (paunch) and reticulum (tripe) of cattle.

This parasite usually is considered to be of slight importance although frequently blamed by laymen as the cause of sickness and mortality in cattle.



Showing the variation in size and shape of Paramphistomum spp.

Fragment of muscle containing the Cysticercus bovis. [After Railliet.

Beef Measles.

Owing to the wide publicity given recently to the discovery of Beef Measles (*Cysticercus bovis*) in Victoria, it may be of interest if a short note dealing with this disease be added. The actual measles in beef are the cystic stages (*Cysticercus bovis*) of the large tapeworm (*Taenia saginata*) affecting the small intestine of man. This tapeworm when mature, varies from 3 to 8 yards in length.

The eggs are passed in the faeces and are swallowed by cattle grazing on contaminated pasture such as one would expect to find on a sewage farm. When swallowed, the eggs hatch, and the minute embryos bore through the intestinal wall and enter the general circulation. In this way they arrive at one or more of the predilection sites, the intermuscular connective tissue especially of the jaw, tongue, heart, and diaphragm. Sometimes they may lodge in other situations such as the lungs or liver. They remain in these positions as elliptical bladder-like structures measuring one-half by two-fifths of an inch and containing a single tapeworm head. These may remain fertile for years but

many of them degenerate and become sterile. They cause no symptoms in cattle.

Human infection is acquired by the consumption of beef in a raw or insufficiently cooked condition.

EXTERNAL PARASITES.

The most important external parasites affecting cattle are lice and ringworm. Fortunately, this State is free from such scourges as the cattle tick and buffalo fly, while mange is not considered to be present amongst cattle here. Three distinct species of lice infest cattle. Two of these are sucking lice, the third being a biting louse.

The biting louse (Bovicola bovis).

The Biting Louse.

The biting louse (*Bovicola bovis*) is small and yellowish with a broad, blunt head. It usually infests the withers and rump, sometimes extending along the back between these two sites. Their presence causes a scurfy condition of the skin, and the constant rubbing and scratching by the irritated animal may cause raw hairless areas. Eggs laid by the females are glued to the hairs and hatch in about ten days.

Sucking Lice.

There are two species of sucking lice quite different in appearance. One is known as the short-nosed sucking louse (*Haematopinus eurysternus*) and the other as the long-nosed sucking louse (*Linognathus vituli*). The short-nosed louse is the more robust of the two and bears a short, bluntly pointed head as broad as it is long. The body is greyish in colour while the anterior end is brown, light brown or yellow.

The short-nosed sucking louse (Haematopinus eurysternus).

The eggs hatch in from 11 to 18 days, the young lice becoming mature in a further 12 days. This species usually is found on adult cattle.

The long-nosed sucking louse is a smaller and more slender parasite, the head being twice as long as it is broad. The body is of a dark greyish-black colour. The complete life cycle takes place within 21 to 25 days. This form frequently infests calves and young cattle. They are found on those portions of the body which are the most protected, e.g., on the head, sides of the neck, brisket, back, escutcheon, between the hind legs

The long-nosed sucking louse (Linognathus vituli). [Queens. Agri. Jnl.

and upon the tail. They feed by piercing the skin and sucking blood and tissue fluids, their presence causing great irritation, and under adverse conditions they may so lower the vitality of an animal, that it loses flesh, ultimately becoming poor and unthrifty.

Treatment.

Affected cattle should be dressed twice at an interval of ten days with one of the following:—Used sump oil, crude oil, liquid or arsenical dips, two per cent. Nicotine Sulphate in a watery soap emulsion or kerosene emulsion, which is prepared by dissolving 1 lb. of soft soap in 1 gallon of hot water, 1 pint of kerosene being then stirred in slowly. This forms a jelly which should be gently rubbed into the hair.

Cattle should be treated on a warm sunny day, and where mineral oils are used the applications should be very light to obviate scalding. All bedding should be destroyed and rugs and brushes &c., thoroughly disinfected, as lice are able to live away from their host for two or three days.

Ringworm.

Ringworm, which is caused by a parasitic fungus (*Trichophyton*), is characterized clinically by the appearance of more or less circular patches on the skin. The hair on these patches is at first lustreless and erect, and later falls off leaving the skin bare.

Symptoms.

Ringworm is found most frequently on the head, especially around the lips and eyes, the legs, and along the neck, although patches may be found on any part of the body. At first the hairless areas are circular and well defined, but may unite and form large irregular patches which frequently show thickening of the skin, the outside layers of which flake off in bran-like greyish scales. They are soon covered by crusts due to small vesicles forming and later rupturing. The crusts are at first dirty-grey, but, due to rubbing, they become admixed with blood and serum, and vary in colour from yellow to brown. The hairs which have not broken become glued together, and sores form which alter the whole surface appearance. Beneath the crusts are often observed numbers of small nodules formed by swollen hair roots and resembling millet seed. The skin may become thickened, wrinkled, and project above the surrounding surface.

Treatment.

Ringworm readily responds to dressing with tincture of iodine and other alcoholic preparations. For bad cases it is as well to prepare the skin first, by washing with a warm solution of soap and washing soda, 2 oz. to 1 pint of water. The scabs may be softened with applications of oil. Other suitable treatments are 2 per cent. picric acid and copper sulphate, 4 oz. to 1 pint of water.

The skin immediately surrounding the edges of hairless areas should also receive treatment. It is well to note that man may contract this disease from cattle, and in some cases it has proved very difficult to cure. Infected animals should be isolated, pens disinfected, and rugs, other clothing, tools, &c., treated also.

Soil Fertility in the Orchard (*Continued from page 134.*)

2. The provision of ample humus by one of several means outlined is a pre-requisite of orchard soil fertility in Victoria.

3. The grower should base his manurial practice on the appearance of his trees, and not on the crops they bear.

4. Lack of each fertilizer gives rise to characteristic growth features.

5. Balanced manuring is essential, balance being more important than the actual amounts of fertilizers present. In this respect a good deal of approximation is still unavoidable.

6. Readily soluble types of fertilizer, such as sulphate of ammonia, superphosphate, and sulphate of potash, are preferred to more slowly available forms.

7. Autumn applications for the benefit of greenstuff may be either 1 to 2 cwt. of sulphate of ammonia or superphosphate, depending on conditions which are discussed.

8. Spring applications should be made two to three weeks prior to bud burst of deciduous trees; and for medium-sized trees should consist of 3 lb. per tree of either 2:2:1 mixture or sulphate of ammonia.

9. For citrus, 3 lb. of sulphate of ammonia in spring, and again in autumn, is good practice.

10. Owing to the danger of fertilizers being fixed by the soil before they can be absorbed they should be introduced, if possible, into the actual root zone by deep ploughing, or by irrigation or rain water.

11. At best artificial fertilizers can be only a subsidiary measure to those items of sound soil management, which keep the soil in good physical condition.

Butter Production and Export

The following tables show :—

(*a*) Factory production of butter and cheese in Victoria for the period July to October, and for the months of November and December, 1935, compared with the corresponding periods of 1934, and

(*b*) Quantities and percentages of various grades of bulk butter examined in Victoria from 1st July, 1935, to 1st February, 1936, in comparison with the corresponding period of 1934–35.

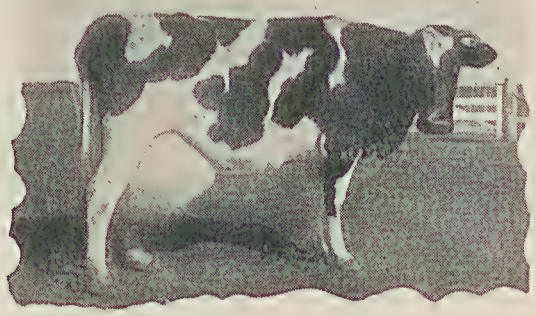
FACTORY PRODUCTION OF BUTTER AND CHEESE IN VICTORIA (QUANTITIES IN TONS).

Month.	Butter.		Cheese.	
	1935.	1934.	1935.	1934.
July to October (inclusive)	22,861	19,046	1,839	1,394
November	10,127*	8,996	676	588
December	8,458†	8,761	570†	514
Totals six months	41,446	36,803	3,085	2,496

* Revised figures. † Subject to revision.

BULK BUTTER EXAMINED FOR EXPORT IN VICTORIA (QUANTITIES IN TONS).

Period.	1935–36.					Period.	1934–35.				
	How Graded—				Total.		How Graded—				Total.
	Ch.	1st.	2nd.	Pty.			Ch.	1st.	2nd.	Pty.	
1st July to 28th December ..	17,122	7,875	1,707	200	26,904	1st July to 29th December ..	10,823	10,805	1,686	202	23,516
29th December to 1st February ..	3,107	1,959	488	93	5,647	30th December to 2nd February ..	1,874	3,181	588	100	5,743
Totals 1st July to 1st February ..	20,229	9,834	2,195	293	32,551	Totals 1st July to 2nd February ..	12,697	13,986	2,274	302	29,259
Percentages ..	62·1	30·2	6·8	·9	..	Percentages ..	43·4	47·8	7·8	1·0	..



Gladiolus.

Orchard and Garden Notes

By Edward E. Pescott, F.L.S.

The Flower Garden.

THE corm known as Montbretia is much grown now. The flowers are carried on branching stems 2 or 3 feet high, and the colours are yellow, orange, and rich red-brown. One of the finest is His Majesty; Lady Wilson is also a beautiful one. Star of the East has flowers up to 3 inches across. Many growers make the mistake of leaving the corms in the same place year after year. They multiply very freely, and thus the plants become crowded. After flowering, the plants should be broken up and replanted in new fresh soil where there is not too much shade. Old manure or leaf mould will improve the soil.

In a few weeks Gladioli will be in full bloom. If wind is prevalent, the flowers should be tied to light stakes, as the stems are usually top-heavy. Plants should be watered freely during the growing period, for at this time and while coming into flower, they are consumers of much moisture. A little blood manure or sulphate of ammonia should be given occasionally to strengthen the growth.

The corms may be lifted at any time after flowering and when the foliage has started to turn brown. Lifting should be done carefully, so that all the cormlets may be removed from the ground at the same time.

The Orchard.

Emphasis is placed on the importance of late sprays against codling moth for late varieties. An attack by the last brood may nullify all of the good work done earlier in the season.

Last season an orchard that was practically free up to early February received a very serious infection of the later brood which caused much loss to the owner.

It is futile to argue that more trouble is caused in the autumn by the light-brown apple moth than by the codling moth. This may possibly be so; but both do extensive damage.

It will be well to keep the fruit covered with spray so that the crop may be insured for the whole of its final growing period on the trees. According to the programme of the entomologist the last sprays should be of white oil. Some growers like to add a small proportion of arsenate of lead to this.

The importance of the collection and destruction of all fallen fruit, even late in the season, cannot be over-estimated.

Citrus-growers are again reminded of the necessity for spraying or fumigating the red scale attacks in their groves. For spraying, white oil should be applied at a strength of 1 in 35. If the oil does not "spread" on the foliage and fruit, but remains in blotches, a small amount of spreader may be used.

The Kitchen Garden.

In "early" districts, the early onion crop may now be provided for. Sets of "tree" and "potato" onions may be planted out in garden rows. Onions prefer a good well-matured soil. Crude stable manure is not always acceptable. The best onion districts in the State are on volcanic or basaltic soils; this is an indication of the plant's requirements.

Onion seed for the home garden may be sown either in a seed-bed or in the garden rows. The former is preferable, as then much less labour in weeding and cultivation is required. Subsequent transplanting is easy.

The seed-bed soil should be quite sandy, with enough loam or leaf-mould added, so that it may not be too loose. Such a soil allows for an easy lifting and transplanting of the seedlings.

For early crops for spring onions and for pickling, the white-skinned varieties should be used. To obtain good pickling onions, the seed should be loosely sown as in a seed-bed, and the plants allowed to remain there. Under such crowded conditions the bulbs remain small, and of a suitable size for pickling.

Standard Herd Records

For Quarter ended 31st December, 1935

In the following is set out the records of all cows which completed a lactation during the quarter. The number is 250, of which 171 qualified for the certificate. The figure in brackets after the owner's name shows the number of entries.

The amount of butter-fat required for qualification varies according to the age of the animal (up to five years at time of calving), the standard being as follow :—

Junior 2 year old (under 2½ years at time of calving)	230 lb. butter fat.
Senior 2 year old (between 2½ and 3 years at time of calving)	250 lb. butter fat.
Junior 3 year old (between 3 and 3½ years at time of calving)	270 lb. butter fat.
Senior 3 year old (between 3½ and 4 years at time of calving)	290 lb. butter fat.
Junior 4 year old (between 4 and 4½ years at time of calving)	310 lb. butter fat.
Senior 4 year old (between 4½ and 5 years at time of calving)	330 lb. butter fat.
Mature cow 5 years and over	350 lb. butter fat.

(Except where otherwise stated, the period of Test was 273 days.)

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day of Test. lb.	Milk. lb.	Average Test.	Butter Fat. lb.	Standard required.	Class.	Previous Yields of Butter Fat.	Sire.
Alston, N. B., Romsey, Jersey (2).										
Rosyth Brown Eyes ..	Vol. 22	28.12.34	10	3,990	5·74	228·96	230	Jr. 2	.. ..	Aveley Antony
Rosyth Sweetbread ..	Vol. 22	12.1.35	17	4,580	5·13	235·16	230	Jr. 2	.. ..	Aveley Antony
Atkinson, W. K., Swan Hill, Dairy Shorthorn (3).										
Willow Park Dainty 8th ..	D.S.H. B.A.	31.1.35	24	7,068	4·26	301·16	230	Jr. 2	.. ..	Willow Park Sherlock
Willow Park Melba 13th ..	D.S.H. B.A.	24.3.35	21	8,715	4·01	349·30	250	Sr. 2	.. ..	Willow Park Silvermine 4th
Willow Park Melba 14th ..	D.S.H. B.A.	9.2.35	26	6,935	4·24	293·77	230	Jr. 2	.. ..	Willow Park Silvermine 4th
Austin, F., Lara, Jersey (1).										
Avalon Starbright's Pansy	Vol. 22	31.12.34	14	5,042	5·76	290·61	230	Jr. 2	.. ..	Brucevale Lord Starbright 3rd
Bassett Smith, C., Kyabram, Red Poll (6).										
Ardgour Catherine ..	1900AA	19.2.35	18	5,732	4·06	232·72	350	Mature	336, 319 ..	Victoria King David
Temperley Blossom 2nd ..	Vol. 8	4.1.35	16½	4,535	4·17	189·04	230	Jr. 2	.. ..	Ardgour Mount Stewart
Temperley Dove 2nd ..	3858A	1.1.35	22½	5,396	5·15	277·73	270	Jr. 3	268 ..	Earl of Beaconsfield
Temperley Kiwi 2nd ..	C.R.	1.3.35	16	4,473	3·55	158·76	250	Sr. 2	.. ..	Earl of Beaconsfield
Temperley Pepita ..	Vol. 8	3.3.35	15	5,520	4·63	256·09	250	Sr. 2	239 ..	Earl of Beaconsfield
Victoria Turban	2340A	2.1.35	23	5,276	4·23	223·00	350	Mature	298, 366, 421, 394, 355	Victoria Air Marshall
Belfield, Mrs. V. M., Coleraine, Jersey (1).										
Nairana Cloth of Gold 3rd	29227	26.1.35	N.o.c.	4,172	5·44	226·90	350	Mature	358, 400 ..	Strathbow Goldstar
Black, Mrs. A. J., Noorat, Jersey (1).										
Noorat Cecilia	41286	3.3.35	22	6,999	6·11	427·61	270	Jr. 3	266 ..	Banyule Superlative
Black, I. S., Noorat, Ayrshire (1).										
Mount Noorat Georgina ..	24146	24.3.35	12½	8,124	4·24	344·36	330	Sr. 4	329, 382 ..	Scottish Major of Gowrie Park
Box, Dr. J., Estate of the late, Noojee, Jersey (1).										
*Melview Empress 2nd ..	33009	20.3.35	4	945	6·15	58·10	350	Mature	333, 292 ..	Handsome Boy 12th of Jerseyholm
Box, Dr. J., Estate of the late, Whittlesea, Jersey (7).										
Melrose Handsome Girl 18th	Vol. 22	24.3.35	13½	4,992	6·02	300·69	230	Jr. 2	.. ..	Melrose Goldreef
Toorongo Epacris ..	Vol. 22	12.3.35	18½	6,090	4·70	286·18	250	Sr. 2	.. ..	Toorongo Mercedes King
Toorongo Gay Girl 2nd ..	42262	24.3.35	15	6,051	5·69	344·27	290	Sr. 3	231 ..	Toorongo Mercedes King
Toorongo Muriel 2nd ..	Vol. 22	3.2.35	4	3,717	5·95	221·34	230	Jr. 2	.. ..	Toorongo Mercedes King
Toorongo Princess Jessie ..	28481	1.1.35	17	6,293	6·69	421·14	350	Mature	304, 354, 420, 384	Sunset of Melrose
Toorongo Princess Mona ..	Vol. 22	23.3.35	22	6,404	4·98	319·12	230	Jr. 2	.. ..	Kantara Don Juan
Xavier Cymbal 2nd ..	Vol. 22	22.3.35	14½	6,272	4·30	269·74	230	Jr. 2	.. ..	Grangelea David
Broad, A. A., Sutton Grange, Jersey (2).										
Grangelea Golden ..	28499	24.1.35	30½	8,261	5·64	465·83	350	Mature	335, 470, 551, 483	Dandy of Grangelea
Grangelea Rosaleen ..	Vol. 22	27.1.35	15½	5,139	6·42	329·75	230	Jr. 2	.. ..	Banyule Macon

* 90 days in test.

Standard Herd Records—*continued.*

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day of Test. lb.	Milk. lb.	Average Test.	Butter Fat. lb.	Standard required.	Class.	Previous Yields of Butter Fat.	Sire.
Chadderton, J. E., Hamilton, Jersey (1).										
Glen Leigh Lassie ..	33097	16.3.35	14½	6,089	5·58	339·87	350	Mature	316, 407, 314	Gadabout of Danton
Chirnside, R. M., Whittlesea, Jersey (2).										
Mornmoot Fancy Starbright	45256	9.3.35	14½	6,233	6·35	395·57	230	Jr. 2	.. ..	Werribee Prince Madeira
Mornmoot Satisfaction ..	45270	4.3.35	20½	6,942	5·34	370·41	230	Jr. 2	.. ..	Werribee Prince Madeira
Clarke, F. W., Toora, Jersey (1).										
Mer-Vue Choice	37096	25.3.35	23	7,179	6·94	498·08	330	Sr. 4	400 ..	Wood Searchlight
Clark, P. W., Whittlesea, Jersey (1).										
Coodardy Gentle Annette ..	37088	21.3.35	14½	6,425	4·69	301·10	310	Jr. 4	293, 165 ..	Kantara Don Juan
Colenso, L. W. R., Alvie, Jersey (2).										
Normandie Buttercup 4th ..	41295	12.3.35	17	6,047	5·17	312·76	290	Sr. 3	239 ..	Normandie Hawthorn Chief
Normandie Hawthorn 5th	Vol. 22	12.1.35	16	3,911	5·94	232·22	230	Jr. 2	.. ..	Peer of Lewisham
Coughlin, C., Catani, Jersey (4).										
†Aveley Valda's Petal ..	26314	17.3.35	4	5,460	5·39	294·11	350	Mature	188, 258, 254, 377, 378, 375	Economist of Aveley
Gladys Park Bluebell's Star	37137	27.12.34	15½	4,763	6·05	288·24	310	Jr. 4	.. ..	Werribee Bluebell's Masterpiece
Gladys Park Gaiety Girl ..	Vol. 22	8.3.35	14	5,436	5·98	325·31	230	Jr. 2	.. ..	Werribee Bluebell's Masterpiece
Gladys Park Master's Dream	43938	20.2.35	24	6,589	6·15	405·05	270	Jr. 3	278 ..	Werribee Bluebell's Masterpiece
Crawford, Mrs. E., Traralgon, Jersey (3).										
†Balniel Noble Girl ..	Vol. 22	9.3.35	..	3,945	4·82	189·98	230	Jr. 2	.. ..	Coolooli Rye's Mozart
*Crystal Brook Hazel ..	Vol. 22	17.3.35	4	2,385	5·27	125·70	250	Sr. 2	.. ..	Crystal Brook Noble
*Mendip Vanilla 4th ..	25271	20.3.35	4	2,460	5·53	136·11	350	Mature	.. ..	Mozart of Warenda
Day, E., Penshurst, Jersey (1).										
Viewpoint Midnight ..	Vol. 22	17.3.35	19	5,184	5·75	297·94	230	Jr. 2	.. ..	Viewpoint Noble
De La Rue, N. C., Weering, Jersey (1).										
Lucerne Vale Master's Silvermine	Vol. 22	10.1.35	23	4,422	6·42	283·82	230	Jr. 2	.. ..	Werribee Fancy Masterpiece
Department of Agriculture, Werribee, Friesian (4).										
Victoria Mavis	Vol. 13	8.3.35	24	9,209	3·15	290·34	230	Jr. 2	.. ..	Dominion Oakdale
Victoria Quilt	3767	27.12.34	30	13,125	3·86	507·05	350	Mature	328, 480, 553	Victoria Topnote
Victoria War Top ..	Vol. 13	27.3.35	16½	8,073	3·14	253·68	230	Jr. 2	.. ..	Victoria Double Top
Victoria Woodcrest Daisy ..	Vol. 13	11.2.35	23	8,282	3·71	307·02	230	Jr. 2	.. ..	Victoria Joyous Mercedes
Department of Agriculture, Werribee, Red Poll (19).										
Victoria Agrestis	3889A	20.3.35	17	5,541	4·29	237·80	250	Sr. 2	.. ..	Dominion Bright Belgian
Victoria Amarylis ..	2301A	24.3.35	20	7,892	4·82	380·58	350	Mature	256, 286, 366, 368	Vice Regal
Victoria Asphodel ..	3008A	31.12.34	26	8,805	3·66	322·49	310	Jr. 4	295 ..	Dominion Bright Belgian
Victoria Avocet	3892A	21.1.35	20	6,923	4·14	286·78	270	Jr. 3	215 ..	Dominion Bright Belgian
Victoria Bell Rose ..	3511AA	13.2.35	6½	5,921	4·27	252·88	270	Jr. 3	.. ..	Victoria Major Royal
Victoria Bright Bess ..	3898A	7.3.35	15	6,998	4·46	312·42	270	Jr. 3	223 ..	Dominion Bright Belgian
Victoria Cheer	3899A	25.3.35	6½	4,376	4.49	196·37	230	Jr. 2	.. ..	Victoria Royal Ringer
Victoria Euphasia ..	3905A	18.3.35	13	4,875	4·33	210·95	230	Jr. 2	.. ..	Dominion Bright Belgian
Victoria Flirt	3906A	17.3.35	30½	7,922	4·21	333·17	270	Jr. 3	248 ..	Victoria Vice Captain
Victoria Lady Decree ..	3025A	10.2.35	22½	7,299	4·46	325·47	310	Jr. 4	281 ..	Earl of Beaconsfield
Victoria Marah	3915A	2.3.35	19½	7,623	4·36	332·05	270	Jr. 3	244 ..	Victoria Royal Ringer
Victoria Peace	2327A	25.2.35	17	6,744	4·58	308·57	350	Mature	309, 335, 325, 333, 369	Victoria Bit-o-bacca
†Victoria Polder	3923A	18.3.35	..	3,796	4·46	169·31	250	Sr. 2	.. ..	Victoria Royal Ringer
Victoria Rebel	2333A	15.2.35	12½	9,090	4·31	391·90	350	Mature	327, 310, 427, 404	Vice Regal
Victoria Separation ..	3926A	4.3.35	20½	6,585	4·24	279·04	270	Jr. 3	215 ..	Dominion Bright Belgian
Victoria True Blue ..	3039A	26.1.35	23½	8,355	4·94	412·47	350	Mature	290, 332 ..	Vice Regal
Victoria Velbit	2341A	9.2.35	19½	7,508	4·16	311·98	350	Mature	328, 328, 303, 342, 371	Victoria Bit-o-bacca
Victoria Waa	3929A	3.3.35	15½	5,165	5·06	261·36	230	Jr. 2	.. ..	Dominion Bright Belgian
Victoria Zephyr	3043A	25.3.35	12	5,841	4·44	259·23	310	Jr. 4	265, 285 ..	Vice Regal
Dookie Agricultural College, Dookie, Ayrshire (4).										
Dookie Ada	17773	17.3.35	27½	10,684	3·97	423·63	350	Mature	336, 312, 378, 479, 427	Majestic of Burwood
Dookie Patsy	27120	8.3.35	33	10,586	3·60	381·06	250	Sr. 2	.. ..	Dookie Emblem
Dookie Sparkle	27121	8.3.35	29	8,709	4·64	404·53	230	Jr. 2	.. ..	Dookie Emblem
Scotswood Dulcie.. ..	27725	20.1.35	15½	5,418	4.89	265·07	230	Jr. 2	.. ..	Scotswood Prelate
Downie Bros., Ripplebrook, Ayrshire (2).										
Glen View Betty 5th ..	Vol. 28	19.3.35	19	7,152	4·40	314·83	270	Jr. 3	256 ..	Gowrie Park Standard Bearer
Glen View Nessie 4th ..	C.R.	14.3.35	20½	6,771	4·66	315·45	270	Jr. 3	199 ..	Gowrie Park Standard Bearer

* 180 days in test. † 240 days in test.

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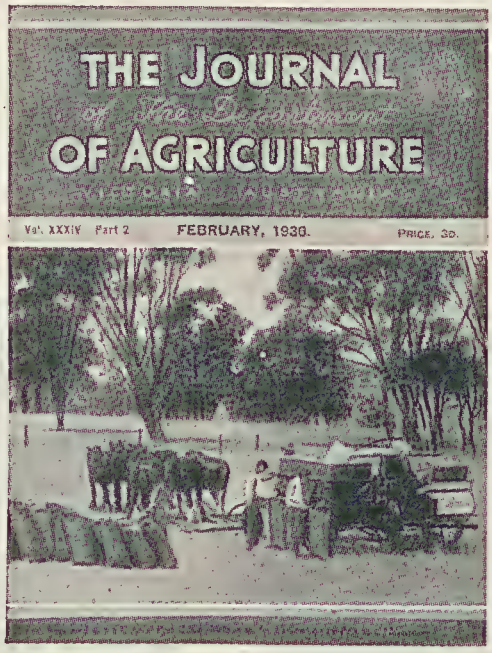

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Standard Herd Records—*continued.*

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day of Test. lb.	Milk. lb.	Average Test.	Butter Fat. lb.	Standard required.	Class.	Previous Yields of Butter Fat.	Sire.
Dwyer, G., Balwyn, Jersey (2).										
Jubilee Freezia	40430	4.2.35	21	6,903	5·39	371·82	290	Sr. 3	206, 353 ..	Jubilee Wheatenlight
Karalee Elmira	Vol. 22	27.1.35	21	6,362	6·40	407·00	250	Sr. 2	.. ..	Karalee Volunteer 6th
Evans, A., Heywood, Jersey (2).										
Boronia Farm Opal ..	43104	3.3.35	17½	4,856	5.27	256·06	230	Jr. 2	.. ..	Boronia Farm Bonnie Chief
Haifa Canary	28477	15.3.35	14½	4,619	5·06	233·54	350	Mature	330 ..	Lassie 4th's Prince of Clover Flat
Messrs. Fairchild and Clutterbuck, Tinamba, Jersey (1).										
Somerville Empress 2nd ..	34111	21.1.35	13	6,498	5·91	384·08	330	Sr. 4	318, 377 ..	Somerville Reputation
Fisken, A. C., Yendon, Dairy Shorthorn (3).										
Lal Lal Queenie	D.S.H. B.A.	17.3.35	4	5,136	4·37	224·48	350	Mature	225 ..	Hillcrest Renown 17th
*Lal Lal Roan Princess ..	D.S.H. B.A.	5.3.35	4	3,030	4·96	150·27	350	Mature	209 ..	Hillcrest Renown 17th
Morven Cressida 22nd ..	D.S.H. B.A.	26.2.35	14½	8,358	4·09	341·48	350	Mature	282, 282, 298, 390, 411	Connaught 60th
Fixter, A., Boisdale, Guernsey (1).										
†Fernlea Daffodil ..	2679	24.3.35	4	4,560	5·75	262·01	350	Mature	290, 326, 347, 363, 240	Werribee Jessie's Boy
Fixter, W., Boisdale, Jersey (3).										
Olivedale Dianthus ..	34006	4.2.35	18½	6,866	5·92	406·32	350	Mature	261, 425, 419	Studleigh Masterpiece
Olivedale Pearl	41372	10.2.35	23½	8,412	5·52	464·15	310	Jr. 4	334, 413 ..	Studleigh Masterpiece
Studleigh Dianthus 3rd ..	25287	21.3.35	12½	5,962	5·96	355·04	350	Mature	315, 380, 389, 401	Studleigh Progress
Foster Bros., Boisdale, Jersey (5).										
Boisdale Brunette 2nd ..	28699	10.3.35	25½	7,604	5·04	383·48	350	Mature	242, 323, 318, 361 ..	Handsome Boy 4th of Jerseyholm
Boisdale Duchess ..	43048	3.3.35	9	3,357	5·56	186·67	250	Sr. 2	68 ..	Gladiator of Springhurst
Boisdale Ettie	43049	9.1.35	8½	4,349	6·08	264·26	270	Jr. 3	299 ..	Boisdale Spark
Boisdale Fairy	43050	24.3.35	9	3,879	6·33	245·52	270	Jr. 3	204 ..	Springhurst Gladiator
Boisdale Marjorie.. ..	Vol. 22	8.3.35	9	3,102	5·83	180·77	230	Jr. 2	.. ..	Boisdale Gladlip
Gay, R. G., North Devon, Jersey (1).										
Elm Grove Jessie Fowler 2nd	37415	22.2.35	27½	8,104	5·75	466·08	330	Sr. 4	348, 342 ..	Gold Star of Melrose
Gazzard, J. and H., Bostock's Creek, Jersey (1).										
Jerseyholm Bluebell 12th ..	40370	15.3.35	18½	6,602	5·90	389·35	290	Sr. 3	173 ..	Lord Island Fancy of Brucevale
Goddard, J. H., Jumbunna, Ayrshire (1).										
Inverurie Festivity ..	27415	28.1.35	18	6,593	4·86	320·55	230	Jr. 2	.. ..	Gowrie Glen Flash Duke
Gregg, V., Whittlesea, Jersey (2).										
Stoneycroft Roma ..	42020	5.2.35	..	6,083	6·37	387·26	310	Jr. 4	347, 370 ..	Kantara Don Juan
Stoneycroft Una 5th ..	Vol. 22	2.3.35	19	5,673	5·09	288·91	230	Jr. 2	.. ..	Toorongo Maori Chief
Handbury, J. E. and Son, Toora, Jersey, No. 2 Farm (1).										
Tooravale Milkmaid 15th ..	Vol. 22	6.3.35	11	3,588	6·06	217·49	230	Jr. 2	.. ..	Tooravale Monica's Son
Harvey, T., Boisdale, Jersey (7).										
Jerseyholm Blue Bell 8th ..	25393	31.12.34	16	5,976	5·77	344·84	350	Mature	297, 319, 450, 352	Lord Island Fancy of Brucevale
Jerseyholm Blue Bell 13th ..	40371	26.1.35	17½	6,599	5·77	380·72	270	Jr. 3	281 ..	Werribee Master's Fox
Jerseyholm Empress 10th ..	25396	24.3.35	22	7,268	6·25	454·57	350	Mature	400, 544, 505, 467	Handsome Boy 5th of Melrose
Jerseyholm Empress 13th ..	25398	7.1.35	15½	5,256	5·65	296·76	350	Mature	338, 429, 404, 357	Werribee Master's Fox
Jerseyholm Empress 30th ..	40377	17.3.35	15½	5,730	6·34	363·05	270	Jr. 3	326 ..	Werribee Master's Fox
Jerseyholm Empress 31st ..	40378	18.1.35	14	6,213	5·42	337·04	270	Jr. 3	302 ..	Werribee Master's Expert
Jerseyholm Empress 32nd ..	40379	23.3.35	19½	6,495	5·64	366·56	270	Jr. 3	345 ..	Werribee Master's Fox
Henderson, W., Grasmere, Ayrshire (7).										
Carracoorte Blanche 9th ..	25903	25.2.35	18½	7,752	5·32	412·40	310	Jr. 4	286 ..	Carracoorte Pilot
Carracoorte Bud 7th ..	25904	25.3.35	18	7,527	4·21	316·70	310	Jr. 4	256 ..	Blue Bell's Pride of Glencourt
Carracoorte Fairy ..	24687	16.3.35	17½	7.262	4·01	290·86	290	Sr. 3	250 ..	Blue Bell's Pride of Glencourt
Carracoorte Iris 17th ..	24695	9.3.35	13	5,526	4·87	269·26	290	Sr. 3	245 ..	Carracoorte Maiden's Laddie
Carracoorte Palm 2nd ..	23552	12.3.35	24	10,023	4·08	409·04	350	Mature	312, 287, 314	Gerty's Producer of Carracoorte
Carracoorte Rose Petal ..	24707	12.3.35	15	7,049	4·82	340·00	310	Jr. 4	242, 185 ..	Carracoorte Maiden's Laddie
Carracoorte Viola 20th ..	25906	25.3.35	19½	8,811	4·60	405·55	330	Sr. 4	.. ..	Carracoorte Pilot
Hore, E., Leitchville, Jersey (1).										
Taranah Roseleaf 4th ..	37589	24.2.35	27	8,001	5·57	445·39	310	Jr. 4	.. ..	Taranah Submarine

* 240 days in test. † 180 days in test.

STANDARD HERD RECORDS—*continued.*

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day of Test. lb.	Milk. lb.	Average Test.	Butter Fat. lb.	Standard required.	Class.	Previous Yields of Butter Fat.	Sire.
Hore, M. T., Horfield, Friesian (1).										
Elmar Ideal Patch ..	3973	10.3.35	14	12,884	3·35	431·39	310	Jr. 4	320, 377 ..	Greenvale Oakwood Posch
Huffer, J. A., Gormandale, Jersey (1).										
Glen Valley Violet ..	C.R.	4.2.35	14	4,050	5·83	236·27	250	Sr. 2	.. ..	Glen Valley The Don
Hurry, W. H., Koonwarra, Jersey (1).										
Kooreena Lulu 6th ..	40582	23.2.35	24	7,472	5·56	415·24	310	Jr. 4	336, 331 ..	Kooreena Orator
Hutchison, H. McD., Yan Yean, Jersey (1).										
Melrose Graceful Duchess 47th	38571	4.3.35	21½	7,723	6·05	466·92	350	Mature	372, 368 ..	Melrose Clementine's Masterpiece 2nd
Hutchinson, J. and Sons, Somerville, Jersey (1).										
Somerville Babs 8th ..	Vol. 22	13.2.35	23½	6,912	5·52	381·74	270	Jr. 3	.. ..	Somerville Master Babs
Ingram, A. B., Millgrove, Illawarra Shorthorn (1).										
Kinlossie Florrie ..	12110	8.1.35	15½	6,561	3·98	260·83	270	Jr. 3	.. ..	General of Glenburn
King, H. W., Warragul, Jersey (2).										
Karoola Honey Bee 3rd ..	23242	27.3.35	26	7,988	5·51	439·96	350	Mature	358, 464, 470, 481, 453	Pretty King of Koorawatha
Karoola Mavis	33440	17.3.35	31	9,003	5·87	528·12	350	Mature	326, 394, 397	Glenallen Mariposa
Knowles, T., Dandenong, Ayrshire (6).										
Dandy Anne ..	C.R.	22.1.35	16	6,597	4·02	265·38	230	Jr. 2	.. ..	Beleura Flashdale
Dandy Blonde	Vol. 28	23.2.35	28	8,049	4·17	335·45	230	Jr. 2	.. ..	Beleura Flashdale
Dandy Empress	C.R.	19.3.35	15½	7,389	3·95	292·21	230	Jr. 2	.. ..	Dandy Baronet
Dandy Lady Violet ..	25998	1.2.35	12	6,155	4·67	287·42	270	Jr. 3	289 ..	Beleura Flashdale
Dandy Limelight	23609	14.2.35	14	7,083	4·72	334·39	350	Mature	284, 340, 406	Beleura Sarchedon
Dandy Princess Margaret ..	24785	12.2.35	23½	7,881	4·46	351·77	310	Jr. 4	313, 385 ..	Beleura Pensive
Le Noury, E., Werribee, Guernsey (4).										
Melbourne Golden Rosina	4544	12.3.35	8	3,309	5·46	180·67	230	Jr. 2	.. ..	Melbourne Don 7th
†Werribee Delight's Honour	5040	1.3.35	..	2,805	4·62	129·54	230	Jr. 2	.. ..	Melbourne Don 7th
*Werribee Princess Daffodil	1245	7.2.35	...	7,275	4·93	358·52	350	Mature	388, 352 ..	Gem of Meadow View (Imp.)
Werribee Princess Pat ..	2639	24.3.35	15	6,528	5·76	375·78	350	Mature	324, 294 ..	Yarraview Saxon
Lindsay, G., Pakenham, Jersey (3).										
Alister Snowflake ..	29470	28.12.34	4	3,882	5·42	210·33	350	Mature	352, 257 ..	Meridale Bright Light
Unanderra Carmen 3rd ..	42329	30.12.34	14	4,799	5·35	256·86	310	Jr. 4	239, 238 ..	Meridale Bright Light
Unanderra Eminent's Rose	Vol. 22	23.1.35	13½	4,391	5·85	257·07	230	Jr. 2	.. ..	Staghorn Clementine's Master
Longerenong Agricultural College, Dooen, Ayrshire (1).										
Longerenong Laureate ..	26557	4.3.35	13	4,991	4·70	234·47	330	Sr. 4	347, 300 ..	Lily's Lad of Holly Green
Lyon, C. G., Heidelberg, Jersey (6).										
Banyule Hawthorn 15th ..	25458	6.2.35	37½	9,773	5·24	512·12	350	Mature	394, 451, 411	Air Lord of Banyule
Molly 17th of Banyule ..	14192	3.2.35	21½	6,335	5·65	357·62	350	Mature	409, 430, 526, 463, 552	Milkmaid's Chief of Banyule
Banyule Silvermine 73rd ..	34194	6.2.35	24	6,957	6·17	428·93	310	Jr. 4	271, 397 ..	Banyule Superstrain
Banyule Silvermine 74th ..	34195	2.1.35	23	8,924	5·29	471·93	310	Jr. 4	302, 330 ..	Banyule Superstrain
Banyule Tiddlewinks 4th ..	25477	30.12.34	8	6,063	5·39	326·87	350	Mature	317, 479, 368	Air Lord of Banyule
Berrington Soprano 4th ..	Vol. 22	18.2.35	9	3,768	6·39	240·73	230	Jr. 2	.. ..	Banyule Triplane
Lyon, W. H., Sale, Jersey (2).										
Avon Blanchette 12th ..	C.R.	26.3.35	5½	4,467	4·91	219·54	290	Sr. 3	.. ..	Jessie 13th's Count of Melrose
†Studleigh Duchess 10th ..	37008	13.2.35	4	4,575	6·22	284·78	330	Sr. 4	292, 226 ..	Studleigh Masterpiece
Macauley, C. W., Rochester, Jersey (2).										
Taranah Radiance ..	37858	18.3.35	15	5,537	5·99	331·53	330	Sr. 4	304, 329 ..	Duke of Invermay
‡Taranah Ruth	42121	26.2.35	..	6,090	5·31	323·57	290	Sr. 3	297 ..	Taranah Submarine
McCosh, S. J., Wandin North, Jersey (2).										
Carney Dell Brilliant 2nd ..	39187	13.1.35	27½	7,458	5·92	441·72	310	Jr. 4	309, 421 ..	Carney Dell Masterpiece
Goronga Farm Daffoplane	38094	18.2.35	24	6,404	5·86	375·13	350	Mature	240, 192, 289	Banyule Triplane
McDougall, J., Byaduk, Jersey (2).										
Park View Charm 3rd ..	41512	17.3.35	16	6,497	4·97	322·82	270	Jr. 3	234 ..	Grangelea Royal
Park View Daphne ..	29047	22.3.35	14½	5,213	5·20	271·13	350	Mature	234, 305, 230	Prince of Park View
McNabb, G. A. and Son, Irrewillipe East, Jersey (5).										
Avalon Gladstar's Belle 2nd	28398	23.3.35	12	5,690	6·79	386·09	350	Mature	.. ..	Gladiator of Springhurst
Kyora Reprieved ..	29372	10.3.35	12	5,440	6·07	330·02	350	Mature	299, 227, 286	Foch of Jerrara
Maxon Bright Bouvardia ..	37848	15.3.35	28	8,565	4·89	418·72	330	Sr. 4	440, 424 ..	Maxon Starbright's Prince 4th
Maxon Bright Daisy ..	45054	20.3.35	17	5,600	5·15	288·56	250	Sr. 2	.. ..	Maxon Starbright's Prince 5th
Maxon Miss Linnaere ..	34220	26.3.35	23	7,389	5·06	374·16	350	Mature	239, 375 ..	Chloe's Mercedes' Chief of Glen Iris

* 240 days in test (dead). † 240 days in test. ‡ 240 days in test (sold).

STANDARD HERD RECORDS—*continued.*

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day of Test. lb.	Milk. lb.	Average Test.	Butter Fat. lb.	Standard required.	Class.	Previous Yields of Butter Fat.	Sire.
Maller, Dr. R., Shepparton, Jersey (2).										
Maneroo Hope	45020	3.2.35	21	6,988	5·72	399·71	250	Sr. 2	284 ..	Wompini Royal Duke
Maneroo Marge's Marguerite	33496	11.3.35	N.O.C.	6,178	6·16	380·67	350	Mature	267, 381, 428, 453	Uranus of Aveley
Mesley, W. T., Dalyston, Jersey (1).										
Warenda Dal Monte 4th ..	Vol. 22	3.2.35	..	7,587	5·59	423·74	290	Sr. 3	.. ..	Warenda Snap
Middleton, E. M., Hamilton, Jersey (10).										
Comleybanks Wattle ..	23387	27.12.34	14½	4,017	5·36	215·54	350	Mature	272 ..	Lily's Lad of Holmwood
Dalray Marcia	33446	27.12.34	22	7,041	5·56	391·39	350	Mature	286, 388, 376	Staghorn Lotus Cream's Masterpiece
Dalray Smileaway 2nd ..	43597	12.2.35	23	6,171	5·52	340·50	290	Sr. 3	283 ..	Dalray Twylish Prince
*Jubilee Arbutus ..	Vol. 22	21.2.35	4	2,655	6·48	172·15	250	Sr. 2	.. ..	Jubilee Asterlight
Jubilee Arum	23388	5.2.35	14	4,713	6·32	297·63	350	Mature	367, 307 ..	Lily's Lad of Holmwood
Jubilee Laburnum ..	26185	3.1.35	14	4,695	6·41	300·90	350	Mature	302 ..	Twylish of Comely Banks
Jubilee Larkspur	C.R.	22.2.35	12	4,266	6·45	275·28	310	Jr. 4	214 ..	Jubilee Wheatenlight
Jubilee Rosebud 2nd ..	33667	8.3.35	23	6,792	5·55	376·90	350	Mature	355, 317 ..	Jubilee Whatlight
Kyora Dream Girl 2nd ..	38173	27.12.34	15½	4,923	6·63	326·18	310	Jr. 4	309, 329 ..	Woodside Reprieve's Volunteer
Strathkellar Melody ..	Vol. 22	18.3.35	10	3,752	4·85	182·09	250	Sr. 2	.. ..	Woodside Reprieve's Volunteer
Mitchell, R. H., Linton, Jersey (1).										
Clifford Farm Marie ..	37948	1.1.35	22½	7,309	6·56	479·34	310	Jr. 4	488, 579 ..	Clifford Farm Don
Moore, J. and Co., Yarram, Jersey (5).										
Tooloonook Molly 6th ..	Vol. 22	25.2.35	22	5,547	4·74	262·69	230	Jr. 2	.. ..	Heroic of Somerville
Tooloonook Sainfoin 3rd ..	Vol. 22	4.3.35	18½	4,512	5·43	245·07	230	Jr. 2	.. ..	Heroic of Somerville
Tooloonook Trixie 12th ..	Vol. 22	15.2.35	11½	4,284	5·71	244·57	310	Jr. 4	267 ..	Beauty 4th Command of Somerville
Tooloonook Velveteen 3rd ..	Vol. 22	21.1.35	4	4,161	5·15	214·09	270	Jr. 3	.. ..	Tooloonook Carob's Hero
Tooloonook Virginia 2nd ..	46475	16.3.35	21½	6,468	5·15	332·93	310	Jr. 4	178, 230 ..	Tooloonook Carob's Hero
Nancarrow Bros., Kerang, Jersey (2).										
Kyora Dream Girl ..	29160	13.3.35	28	9,561	5·41	517·37	350	Mature	374, 416, 467, 459, 514	Perrees Duke (Imp.)
Pine Ridge Countess ..	Vol. 22	13.1.35	16½	4,803	5·85	280·85	230	Jr. 2	.. ..	Bellaire Count
Nicholas, A. M., Sherbrooke, Jersey (1).										
Jubilee Montbretia ..	40433	22.2.35	13	6,005	5·34	320·69	290	Sr. 3	269, 293 ..	Jubilee Asterlight
Noble, T. M. and Son, Maffra, Jersey (2).										
Finchley Handsome Lady 2nd	43886	23.3.35	17	5,705	7·28	415·10	270	Jr. 3	276 ..	Finchley Lord Harmony
Linga Longa Fairy's Handsome Girl	28875	1.2.35	19	7,325	7·64	559·94	350	Mature	336, 446, 389, 587, 668, 483	Jessie's Handsome Boy
Nolte, E. H., Merino, Jersey (1).										
Nairana Virginia 6th ...	29272	3.2.35	..	6,228	5·84	363·67	350	Mature	417, 391, 362	Strathbow Gold Star
Overend, A. C., Sale, Jersey (4).										
Bon Accord Brilliant Gem ..	38008	10.2.35	16½	6,206	5·92	367·12	350	Mature	262, 411, 230, 384	Bon Accord David
Bon Accord Brilliant Ray ..	43056	1.1.35	16½	4,700	6·35	298·56	250	Sr. 2	171 ..	Bon Accord John
Bon Accord Madam Pompadour 3rd	38950	20.2.35	16	5,571	6·57	365·80	290	Sr. 3	201, 348 ..	Bon Accord John
Bon Accord Mascotte 2nd ..	38011	30.12.34	10	4,832	6·36	307·46	350	Mature	290, 305, 268	Bon Accord David
Pattison, F., Tongala, Ayrshire (1).										
Willow Park Rosina ..	26810	1.2.35	16½	5,904	4·71	278·06	230	Jr. 2	.. ..	Fulham Beam
Payne, A. E. T., Lilydale, Guernsey (2).										
Nundorah Golden Daffodil 2nd	2814	22.3.35	21½	8,094	4·82	390·18	350	Mature	.. ..	Nundorah Golden Sovereign
Yarraview Citron ..	3550	28.1.35	13½	6,027	5·72	344·95	250	Sr. 2	.. ..	Woodland Fluer-de-Lys
Phillips, J. H., Speewa, Jersey (1).										
Kantara Musk	26202	25.3.35	24½	8,172	5·24	428·02	350	Mature	330, 370, 436, 443	Kantara Great Gun
Pollard, C. F., Bonegilla, Jersey (2).										
Bonegilla Blue Bell ..	Vol. 22	29.12.34	15	4,853	5·75	278·91	250	Sr. 2	.. ..	Avalon Lad Star 18th
Bonegilla Chrysanthemum	43077	7.2.35	N.O.C.	4,157	5·49	228·17	250	Sr. 2	246 ..	Avalon Glad Star
Poyner, N. R., Lilydale, Jersey (2).										
Brucevale Island Fancy 2nd	C.R.	31.12.34	16	4,631	5·08	235·14	310	Jr. 4	237 ..	Werribee Wyandotte's King
Lilydale Sweet Nell ..	Vol. 22	5.3.35	23	5,264	5·10	268·28	230	Jr. 2	.. ..	Lilydale Dauntless

* 210 days in test.

STANDARD HERD RECORDS—*continued.*

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day of Test. lb.	Milk. lb.	Average Test.	Butter Fat. lb.	Standard required.	Class.	Previous Yields of Butter Fat.		Sire.
Pullar, P. G., Tatura, Friesian (2).											
Goulburn Lady Posch ..	4038	28.12.34	37	10,557	3·34	352·19	270	Jr. 3	297	..	Goulburn Sylvia Beet
Winlaton Narcissus ..	Vol. 13	9.2.35	26	8,501	3·94	334·88	230	Jr. 2	..	..	King Alcartra Netherland
Raggatt, F., Tongala, Jersey (1).											
Strathbow Goldie 9th ..	37637	26.1.35	23½	6,849	5·15	352·59	310	Jr. 4	290	..	Banyule Mollerne
Raleigh, Miss H. E., Pakenham Upper, Jersey (2).											
Banyarra Starbright 2nd ..	42877	3.1.35	20	6,512	5·39	351·04	270	Jr. 3	305	..	Banyarra Mussolini
Goronga Farm Daffodil Octavia	44162	5.1.35	17½	5,778	5·78	333·83	270	Jr. 3	320	..	Banyule Air Gun
Read, J. D., Springhurst, Jersey (2).											
Springhurst Coronation Nightshade	46183	24.3.35	20½	7,277	5·65	410·95	270	Jr. 3	376	..	Designs Ruler (Imp.)
Springhurst Romneya 3rd ..	29339	24.3.35	26	8,553	6·06	518·27	350	Mature	442, 517, 399, 453		Starbright's Prince of Glen Iris
Rechenberg, J. F., Marshall, Ayrshire (4).											
Camelot Alma	C.R.	23.3.35	10½	5,471	4·79	261·96	230	Jr. 2	..	..	Gowrie Park Squire
Camelot Dazzle	C.R.	22.3.35	11	4,731	4·46	211·04	250	Sr. 2	..	..	Scotswood Adonis Earl
Camelot Pearl Bangle ..	25896	8.2.35	18½	5,913	4·58	270·57	270	Jr. 3	200	..	Gala Nugget
Sparrovale Mona	16683	29.1.35	16½	6,372	4·27	272·24	350	Mature	380, 377	..	Scottish Fame of Gowrie Park
Richardson, W. S., Bacchus Marsh, Jersey (2).											
Sutton Lea Sylvie ..	Vol. 22	6.2.35	16	4,173	5·69	237·48	270	Jr. 3	..	..	Banyule Petalon 2nd
Sutton Lea Vanity ..	46290	6.1.35	13	3,624	6·76	245·08	270	Jr. 3	231	..	Banyule Petalon 2nd
Ronalds, O., Tarago, Jersey (4).											
Jindivick Empress ..	Vol. 22	10.3.35	24½	7,287	5·07	369·69	230	Jr. 2	..	..	Somerville Master Babs
Jindivick Northern Duchess	44515	13.2.35	28½	8,193	6·72	550·69	270	Jr. 3	431	..	Somerville Master Babs
Jindivick Rosebud ..	Vol. 22	1.3.35	26	7,212	5·02	361·82	250	Sr. 2	..	..	Somerville Renown
Somerville Heroine 3rd ..	28777	1.3.35	31	9,068	5·21	472·72	350	Mature	530	..	Banyule Aeronaut
Salesian College, Sunbury, Ayrshire (1).											
*Rupertswood Rosella ..	22060	6.2.35	N.O.C.	6,585	4·67	307·62	350	Mature	320, 235, 308		Lancer of Rupertswood
Salesian College, Sunbury, Friesian (2).											
Burnbank Canona ..	Vol. 13	5.1.35	34	9,993	3·53	352·76	270	Jr. 3	278	..	Burnbank Majoe
Ingolston May Echo ..	4099	3.2.35	33	10,076	3·92	394·53	350	Mature	385	..	Alne Bank Matador Prince
Smith, E. L. and Sons, Woodend, Friesian (3).											
Homeleigh Ina Domino ..	Vol. 13	13.1.35	29½	6,467	3·32	214·66	230	Jr. 2	..	..	Longbeach Netherland King 2nd
Homeleigh Navarre ..	Vol. 13	1.1.35	35	9,102	3·49	317·36	230	Jr. 2	..	..	Longbeach Netherland King 2nd
Homeleigh Olga Fobes ..	Vol. 13	25.3.35	35	9,207	3·28	301·66	230	Jr. 2	..	..	Longbeach Netherland King 2nd
Stoll, Mrs. L. T., Rokeby, Jersey (1).											
Cloverbank Gwen 2nd ..	43418	9.2.35	11	4,578	6·00	274·85	290	Sr. 3	246	..	Cloverbank Lord Twylish
Stoney, W. B., Drouin West, Jersey (1).											
Edmonton Scarcity 2nd ..	Vol. 22	26.1.35	16½	5,027	6·17	310·22	290	Sr. 3	..	..	Rarius of Edmonton
Thomas and Taylor, Hamilton, Ayrshire (9).											
Carracoorte Betsy 25th ..	Vol. 28	23.3.35	19½	6,494	4·70	305·24	230	Jr. 2	..	..	Carracoorte Panic
Carracoorte Brownell's Beauty	24683	24.1.35	6	5,237	5·41	283·45	310	Jr. 4	272	..	Carracoorte Maiden's Laddie
Carracoorte Fennella 15th ..	24688	26.2.35	17	6,968	5·15	358·68	350	Mature	273	..	Gerty's Producer of Carracoorte
Carracoorte Lillian 7th ..	27012	27.1.35	26	6,300	5·42	341·32	230	Jr. 2	..	..	Carracoorte Panic
Carracoorte Lucy 19th ..	Vol. 28	19.3.35	21½	6,288	3·84	241·70	230	Jr. 2	..	..	Carracoorte Panic
Carracoorte Minnie 7th ..	24706	5.1.35	6	6,554	6·16	403·81	330	Sr. 4	329	..	Carracoorte Lochiel
Carracoorte Pearl 12th ..	Vol. 28	15.2.35	12	6,236	4·85	302·39	230	Jr. 2	..	..	Grand View Bernie
Carracoorte Viola 13th ..	19740	9.2.35	31	8,841	4·79	423·38	350	Mature	189, 293, 416		Blue Bell's Pride of Glencourt
Jennewar Valda ..	Vol. 28	22.3.35	16	4,691	4·48	210·11	230	Jr. 2	..	..	Carracoorte Opperman
Vagg, E. J., Leongatha, Jersey (2).											
Bonnay Love's Bluebell ..	C.R.	6.1.35	18½	5,514	5·19	285·97	230	Jr. 2	..	..	Jerseyinn Edith's Masterpiece
Jerseyinn Edith 2nd ..	38450	17.3.35	36	10,983	6·17	677·80	350	Mature	438, 608	..	Werribee Bluebell's Masterpiece
Van Brummelen, J. K., Ferntree Gully, Friesian (1).											
Bolero Petronella's Medora	C.R.	8.1.35	30½	7,802	3·61	281·29	270	Jr. 3	245	..	St. Albans Queen's Korndyke 2nd

* 240 days in test.

Standard Herd Records—*continued.*

Name of Cow.	Herd Book No.	Date of Calving.	Milk last day of Test. lb.	Milk. lb.	Average Test.	Butter Fat. lb.	Standard required.	Class.	Previous Yields of Butter Fat.	Sire.
Wade, W. J., Stratford, Jersey (1).										
Hazeldale Ruby 2nd ..	25555	9.2.35	14½	6,405	5·11	327·28	350	Mature	294, 326, 252, 422, 448, 376	Dinkum of Banyule
Walker, C. S., Swan Hill, Friesian (1).										
Speewa Piebe Violet ..	4259	27.12.34	21	10,490	3·86	404·71	350	Mature	375, 325, 438	Burnbank Piebe Leonora
Walker, C. S., Swan Hill, Jersey (3).										
Warwick Beauty 2nd ..	46641	20.1.35	12	6,533	5·06	330·55	270	Jr. 3	311 ..	Preston Star King
Warwick Polly	38488	2.2.35	18	6,744	5·22	351·87	350	Mature	142, 355, 308	Chevrolet of Banyule
Warwick Princess Irene ..	38489	18.1.35	14	6,153	4·77	293·25	350	Mature	305, 363, 317	Chevrolet of Banyule
Wallace, A., Kennington, Ayrshire (1).										
Spring Dale Gem ..	22082	27.3.35	7	5,946	4·08	242·42	350	Mature	185 ..	Fairy Prince of Glen Cooee
Wallace, A., Kennington, Jersey (3).										
Fairy Dell Ruby	39731	28.3.35	12	4,230	4·00	169·34	330	Sr. 4	278 ..	Myall Dainty Lad
Myall Bright April ..	Vol. 22	23.3.35	6	5,001	5·13	256·38	250	Sr. 2	.. ..	Kyora Foch
Preston Sun Blossom ..	38500	25.3.35	23	6,804	4·26	290·12	350	Mature	256, 311 ..	Preston Pretty Boy
Warragul High School, Warragul, Red Poll (4).										
Gipps Christina	2874A	23.2.35	12½	6,548	5·47	358·16	330	Sr. 4	250, 220 ..	Woodburn Laureate
Gipps Gulnare	3656A	5.3.35	16	6,201	4·52	280·51	230	Jr. 2	.. ..	Gipps Byron
Gipps Julia	3658A	8.3.35	19	6,377	4·46	284·18	230	Jr. 2	.. ..	Gipps Byron
Gipps Ultima	3662A	18.3.35	13	5,253	4·73	248·42	230	Jr. 2	.. ..	Gipps Byron
Wilson, D. C., Derrinallum, Jersey (4).										
*Ayton Law Noble Sylvie 2nd	42840	24.3.35	..	2,490	7·89	196·49	330	Sr. 4	203, 243 ..	Wagga Yambil's Goddington Noble
*Ayton Law Noble Silvie 3rd	38759	9.3.35	..	2,243	5·62	126·01	330	Sr. 4	202, 185 ..	Wagga Yambil's Goddington Noble
Ayton Law Silvie's Girl 2nd	33923	18.3.35	9½	4,539	5·67	257·27	350	Mature	249, 208, 217	Wagga Yambil's Goddington Noble
Saskachewan Tressa ..	33925	22.3.35	15½	5,598	6·02	336·89	350	Mature	219, 296, 395, 323	Werribee Sir Northwood
Wood, J. V. M., Heidelberg, Jersey (10).										
Clarendon Eyre Belladonna	33939	27.2.35	25	8,034	5·80	466·23	350	Mature	420, 475, 527, 446	Clarendon Eyre Eminent's Achievement
Clarendon Eyre Belladonna 2nd	39243	27.2.35	24	7,530	5·65	425·35	330	Sr. 4	485, 508 ..	Clarendon Eyre Happy Husband
†Clarendon Eyre Belladonna 3rd	43378	27.3.35	..	5,235	6·17	322·80	270	Jr. 3	354 ..	Ruby's Beau (Imp.)
‡Clarendon Lilac Domino 3rd	Vol. 22	21.3.35	..	4,650	6·06	281·87	230	Jr. 2	.. ..	Ruby's Beau (Imp.)
Clarendon Eyre Little Buttercup 6th ..	Vol. 22	7.2.35	17½	5,256	5·87	308·67	230	Jr. 2	.. ..	Rochette's Golden (Imp.)
Clarendon Eyre Primrose ..	39256	28.1.35	21	7,583	4·81	364·38	330	Sr. 4	385, 341 ..	Clarendon Eyre Eminent's Bing Boy
Clarendon Eyre Rose Marie 8th	Vol. 22	10.1.35	17	6,704	5·02	336·22	230	Jr. 2	.. ..	Clarendon Eyre Eminent's Bing Boy
‡Clarendon Eyre Spangles 2nd	43394	19.2.35	..	4,545	6·12	278·25	290	Sr. 3	322 ..	Clarendon Eyre Eminent's Achievement
‡Clarendon Eyre Utopia 4th	43398	27.2.35	..	4,928	6·07	299·30	230	Jr. 2	.. ..	Rochette's Golden (Imp.)
Clarendon Eyre Utopia 5th	Vol. 22	16.3.35	18½	5,408	5·72	309·36	230	Jr. 2	.. ..	Rochette's Golden (Imp.)
Xavier College, Kew, Jersey (1).										
§Fairhope Magnet ..	21398	30.12.34	N.O.C.	3,585	6·11	219·07	350	Mature	512, 559, 449, 334	Merry Boy of Ilford

* 210 days in test. † 210 days in test (sold). ‡ 240 days in test (sold). § 240 days in test.

TESTED SIRES.

Hereunder is a list of sires one or more of whose progeny in the test for the quarter ended 31st December last yielded 100 lb. butter-fat in excess of that required to qualify for certificate. The quantity of butter-fat required for certificate in the various classes plus the additional 100 lb. is indicated at the top of the several columns, and the figures shown opposite the name of each sire are the yields of butter-fat from individual heifers or cows by that sire.

Name of Sire.	Breed.	Class.						
		Jr. 2 330 lb.	Sr. 2 350 lb.	Jr. 3 370 lb.	Sr. 3 390 lb.	Jr. 4 410 lb.	Sr. 4 430 lb.	Mature 450 lb.
Air Lord of Banyule	Jersey	..	..	..	..	..	..	512
Banyule Aeronaut	Jersey	..	..	..	..	..	..	473
Banyule Superlative	Jersey	..	..	428	..	..	..	..
Banyule Superstrain	Jersey	..	..	..	..	429 472	..	..
Beleura Flashdale	Ayrshire	335	..	..	..	..	..	..
Carney Dell Masterpiece	Jersey	..	..	..	..	442	..	..
Carracoorte Panic	Ayrshire	341	..	..	..	..	..	..
Carracoorte Pilot	Ayrshire	..	..	..	..	412	..	..
Clarendon Eyre Eminent's Bing Boy	Jersey	336	..	..	..	..	..	..
Clarendon Eyre Eminent's Achievement	Jersey	..	..	..	..	..	..	466
Clifford Farm Don	Jersey	..	..	..	..	479	..	..
Dandy of Grangelea	Jersey	..	..	..	..	..	..	466
Designs Ruler (Imp.)	Jersey	..	..	411	..	..	..	..
Dookie Emblem	Ayrshire	405	381	..	..	..	..	..
Finchley Lord Harmony	Jersey	..	..	415	..	..	..	..
Glenallen Mariposa	Jersey	..	..	..	..	..	..	528
Gold Star of Melrose	Jersey	..	..	..	..	..	466	..
Greenvale Oakwood Posch	Friesian	..	..	..	..	431	..	..
Handsome Boy 5th of Melrose	Jersey	..	..	..	..	..	..	455
Jessie's Handsome Boy	Jersey	..	..	..	..	..	..	560
Karalee Volunteer 6th	Jersey	..	407	..	..	..	..	..
King Alcartra Netherland	Friesian	335	..	..	..	..	..	..
Kooreena Orator	Jersey	..	..	..	..	415	..	..
Melrose Clementine's Masterpiece 2nd	Jersey	..	..	..	..	..	..	467
Perrees Duke (Imp.)	Jersey	..	..	..	..	..	..	517
Somerville Master Babs	Jersey	370	..	382 551	..	..	..	..
Somerville Renown	Jersey	..	362	..	..	..	..	..
Starbright's Prince of Glen Iris	Jersey	..	..	..	..	..	..	518
Studleigh Masterpiece	Jersey	..	..	..	..	464	..	..
Taranah Submarine	Jersey	..	..	..	..	445	..	..
Victoria Topnote	Friesian	..	..	..	..	..	..	507
Warenda Snap	Jersey	..	..	..	424	..	..	..
Werribee Bluebell's Masterpiece	Jersey	..	..	405	..	..	..	678
Werribee Master's Fox	Jersey	..	..	381	..	..	..	..
Werribee Prince Madeira	Jersey	370 396	..	..	..	..	..	..
Wompini Royal Duke	Jersey	..	400	..	..	..	..	..
Wood Searchlight	Jersey	..	..	..	..	..	498	..

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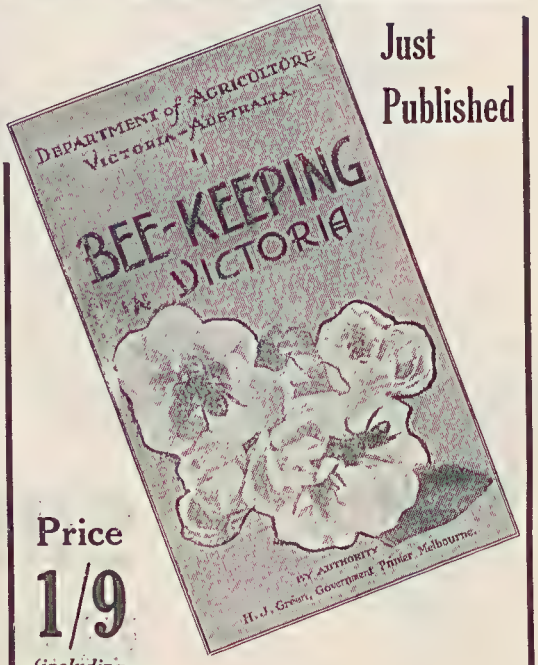

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1. VICTORIA DOMINO'S Jo (C.R.) *Born 10th November, 1934*
Sire: Victoria Woodcrest Jo (Vol. 13). *Dam:* Victoria Domino (Vol. 13.)
Victoria Domino produced 362 lb. butter-fat in 273 days as Jr. 2.
Price: **15 guineas** f.o.r. Werribee

2. VICTORIA TOPARCH (C.R.) *Born 3rd Januaru, 1935*
Sire: Victoria Double Top (1354). *Dam:* Victoria Joy Top (3764).
Victoria Joy Top produced 361 lb. butter-fat as a Jr. 2 in 273 days.
Price: **15 guineas** f.o.r. Werribee

3. VICTORIA BELLTOPPER (C.R.) *Born 1st June, 1935*
Sire: Victoria Double Top (1354). *Dam:* Victoria Jingle Bell (4288).
Victoria Jingle Bell produced 387 lb. butter-fat in 273 days as Jr. 2.
Price: **14 guineas** f.o.r Werribee

4. VICTORIA DOMINANCE (C.R.) *Born 15th August, 1935*
Sire: Victoria Joyous Mercedes (985). *Dam:* Victoria Domino Patch (3255).
Victoria Domino Patch produced 466 lb. butter-fat in 273 days at 6 years.
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Victoria Rebel produced 427 lb. butter-fat in 273 days as Sr. 4.

No. 2. VICTORIA CORYDON. (A., C.R.). Born 11th March, 1935 *Price* 12 guineas
Sire: Victoria Gallant (1481 AA). *Dam:* Victoria Corymb (3901 A) f.o.r. Werribee
Victoria Corymb is a heifer with incomplete records.

No. 3. VICTORIA SALUTE. (A., C.R.). Born 12th June, 1935 .. *Price* 15 guineas
Sire: Woodburn Peter Pan (Imp. in utero) (1504 AA). *Dam:* Victoria Greta (3023 A). f.o.r. Werribee
Victoria Greta produced 377 lb. butter-fat in 273 days as Sr. 4.

No. 4. VICTORIA NIRVANA. (A., C.R.). Born 22nd September, 1935 *Price* 10 guineas
Sire: Victorian Goblin (1647 A). *Dam:* Victoria Elysia (3903 A). f.o.r. Werribee
Victoria Elysia is a heifer with incomplete records.

No. 5. VICTORIA VALENTINE. (AA., C.R.). Born 30th September, 1935 *Price* 20 guineas
Sire: Chandpara Valentine (762 AA). *Dam:* Victoria Debutante (3513 AA). f.o.r. Werribee
Victoria Debutante produced 261 lb. butter-fat in 273 days as Sr. 2.. (An AA calf.)

No. 6. VICTORIA MARVEL. (A., C.R.). Born 15th October, 1935 *Price* 12 guineas
Sire: Chandpara Valentine (762 AA). *Dam:* Victoria Amaranth (3006 A). f.o.r. Werribee
Victoria Amaranth produced 342 lb. butter-fat in 273 days.

Prices are based on the average butter-fat production of the dam in 273 days, except in the case of progeny of heifers without completed test, the price then being 10 guineas.

An amount of 2 guineas per quarter maintenance has been added to calves 3 months old and over.

Inspection cordially invited. For further particulars apply to—

THE DIRECTOR OF AGRICULTURE, MELBOURNE, C.2; OR THE MANAGER, STATE RESEARCH FARM, WERRIBEE.

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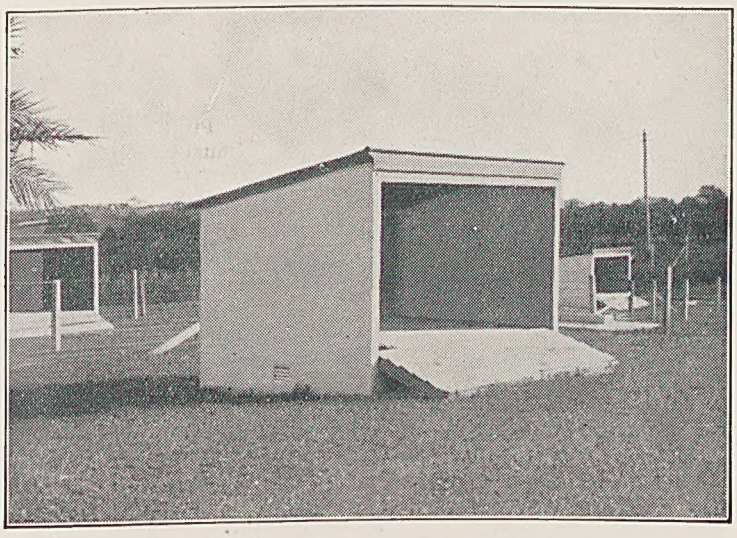

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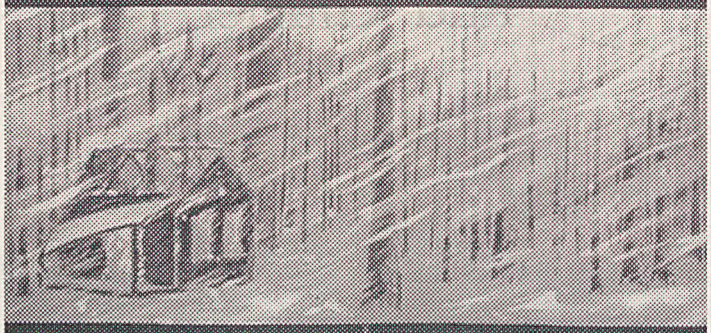

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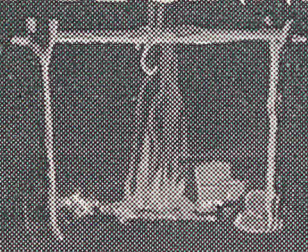

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